JOURNAL of GEOGRAPHY

for Teachers of
ELEMENTARY,
HIGH SCHOOL
and COLLEGE
GEOGRAPHY

Volume LX

November, 1961

Number 8

PUBLISHED BY

A. J. NYSTROM & CO.
THE NATIONAL COUNCIL FOR GEOGRAPHIC, EDUCATION
THOMAS FRANK BARTON, EDITOR

Case Studies in World Geography

OCCUPANCE and ECONOMY TYPES

by Richard M. Highsmith, Jr. (editor), Oliver Heintzelman, J. Granville Jensen, Robert D. Rudd, and Paul R. Tschirley, all of Oregon State University

. . . a book of collateral readings that gives the student detailed examples of world geography. The twenty-nine case studies are grouped according to occupance and economy types and provide both world coverage and depth of analysis. The cases cover: (1) man in relationship to the various environmental settings of the world; (2) the influences of various cultural and technological levels; and (3) the world scope of occupance and economy types. Each case is illustrated with simple but meaningful maps and drawings.

1961 244 pp. Paperbound Text price: $3.95

Soviet Power

ENERGY RESOURCES, PRODUCTION, and POTENTIALS

by Jordan A. Hodgkins of Kent State University

. . . a definitive regional analysis and evaluation of Soviet coal, oil, oil shale, and natural gas reserves—their potentials, production, and consumption. The consumption of each resource is cartographically illustrated on a regional basis, and the significance of their use is analyzed. This is the only current publication which specifically depicts the quantity, quality, and location of solid mineral fuel resources in the Soviet Union.

1961 192 pp. Text price: $3.95

Man and the Earth

by Joseph B. Hoyt of Southern Connecticut State College

. . . a stimulating new text which provides a dual approach to the study of geography: a systematic presentation of the physical elements of geography and a regional concept emphasizing the dynamic nature of man's relation to his environment. The author's timely world approach draws from all continents and regions to illustrate the relationships existing among the various physical elements, landforms, climates, vegetation, soils, water and minerals, and between man and all of these elements.

Spring, 1962 approx. 576 pp. Text price: $8.95

Approval Copies Available

Prentice-Hall, Inc.

BOX 903 • ENGLEWOOD CLIFFS • NEW JERSEY

The JOURNAL *of* GEOGRAPHY

CONTENTS FOR NOVEMBER, 1961

Articles

Sequential Development of Increasingly Difficult Concepts through the High Schools.
By N. V. Scarfe 351

Professor Scarfe, Dean of the Faculty and College of Education at The University of British Columbia, is an Associate Editor and a frequent contributor to THE JOURNAL OF GEOGRAPHY and other magazines. "Geography Across the Curriculum" and "Our Educational Environment and Geography Teaching" appeared in the March, 1959 and March, 1960 issues of THE JOURNAL OF GEOGRAPHY.

A Joint Effort to Improve High School Geography.
By Gilbert F. White 357

Professor White, Department of Geography, University of Chicago, is an Executive Board Member of the NCGE. One of his special interests is Geography in Education.

Our Nation's Schools Need a Radical Rehaul According to Secondary School Study Commission.
By National Education Association 360

Education in the Human Use of Flood Plains.
By Ian Burton 362

Mr. Burton at the time of writing this article was a graduate student at the University of Chicago. He is now a Lecturer at the University of Toronto. He has also taught at the Gary Center, Indiana University; the Faulkner School, Chicago; and at Oberlin College, Ohio. He graduated from the University of Birmingham, England.

Population and Resources of the European Economic Community.
By Francis J. Monkhouse 371

Professor Monkhouse with an M.A. from Cambridge is Head of the Department of Geography, University of Southampton, England. When he wrote this article and presented it before the Annual Meeting of the NCGE in Cincinnati, he was a Visiting Professor at Miami University, Oxford, Ohio.

Population and Resources of the Mediterranean Area.
By George Kish 378

Dr. Kish, Professor of Geography at The University of Michigan, spent two extended field seasons in the Mediterranean Area in 1959 and 1960. He is now engaged in a detailed study of agrarian reform in Italy.

General

National Council at Work 383

Geographic Materials Received 384

Book Reviews 385-390, 394, 396

Contents of the JOURNAL are indexed regularly in the *Educational Index to Periodicals.*
Authors alone are responsible for opinions and statements in the JOURNAL.

PRINTED IN THE U.S.A.

The JOURNAL *of* GEOGRAPHY

THOMAS FRANK BARTON, *Editor*
GEORGE J. MILLER, *Assistant Editor*
Indiana University, Bloomington, Indiana

Associate Editors

EARL B. SHAW, Assumption College, Worcester, Mass.
NEVILLE V. SCARFE, University of British Columbia, Vancouver
R. S. FUNDERBURK, Central Washington College of Education, Ellensburg
MARY VIOLA PHILLIPS, University of Pittsburgh
JOHN W. MORRIS, University of Oklahoma
ROBERT C. KINGSBURY, Indiana University
ZOE A. THRALLS, University of Pittsburgh
HENRY J. WARMAN, Clark University
CLYDE F. KOHN, University of Iowa
OTIS W. FREEMAN, Apt. 306, 2609 West Montlake Place East, Seattle 2, Washington
MAMIE L. ANDERZHON, Indiana State College, Indiana, Pennsylvania
JEWELL PHELPS, George Peabody College, Nashville, Tennessee

National Council for Geographic Education

JEWELL PHELPS, *President*, George Peabody College, Nashville, Tennessee
LORRIN G. KENNAMER, *Secretary*, University of Texas, Austin, Texas

---

SUBSCRIPTION TERMS

The subscription price is $5.00 a year payable in advance. The price of single copies is 60 cents. Postage prepaid on subscriptions from the United States and dependencies. All other countries in the Postal Union add for postage 70¢ on annual subscriptions (total $5.70 plus exchange), on single copies 5¢ (total 65¢). All subscriptions are payable in United States Dollars. Where payment is made in other than United States currency, add 45¢ additional for exchange. Postage to countries in South America remains the same (55¢), but the exchange rate must be added.

The JOURNAL is the official organ of the National Council for Geographic Education and is sent to all members. The annual dues, $5.00, are payable to the JOURNAL of Geography. Extra postage rates for copies sent to foreign countries should be added to the membership dues. Make all remittances payable to the JOURNAL OF GEOGRAPHY, in postal or express money orders or bank drafts. Send payments to Miss M. F. Sweeney, A. J. Nystrom and Company, 3333 Elston Avenue, Chicago 18.

Send manuscript and books for notice or review to the Editor.
Send orders for back numbers to JOURNAL OF GEOGRAPHY.

Published monthly except June, July and August
PUBLICATION OFFICES: CURTIS REED PLAZA, MENASHA, WISCONSIN
Business Correspondence, Membership Dues, and Subscriptions may be sent to

Publication office or to

A. J. NYSTROM AND COMPANY
PUBLISHERS, JOURNAL OF GEOGRAPHY
3333 ELSTON AVENUE, CHICAGO 18

Second-class postage paid at the Post Office at MENASHA, WISCONSIN, under the Act of March 3, 1879.

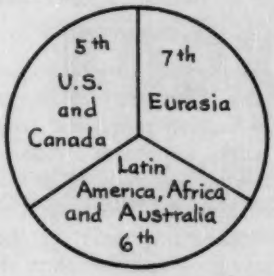
JOURNAL OF GEOGRAPHY PRIZE TO AUTHORS

Annually a Geographic Education Prize of $25.00 is awarded for outstanding articles published in the JOURNAL. In the even numbered years the prize is for the Elementary level and in the odd years for the High School level

How are we going to divide the world pie?

LANDS AND PEOPLES OF THE WORLD

has the answer—



This popular geography series presents a logical organization of subject matter. It provides a balanced work load for the teacher by grouping Latin America, Africa, and Australia for study in the sixth grade.

Certain geographic, economic, cultural, and historical similarities among these areas make possible frequent use of comparisons and contrasts which reinforce learning and result in an efficient use of the time devoted to studying these important areas of the world.

LATIN AMERICA, AFRICA, AND AUSTRALIA, studied in grade 6, is the keystone of the program. This permits THE UNITED STATES AND CANADA to be studied in grade 5, and EURASIA in grade 7.

For planning a balanced program in geography, request the scope and sequence chart for this series from your nearest sales office. Books for grade 3 and for grade 4 are also available.

GINN AND COMPANY

Home Office: Boston

Sales Offices: New York 11 Chicago 6 Atlanta 5 Dallas 1
Palo Alto Toronto 16

Wiley BOOKS

A Glossary of Geographical Terms

Prepared by a Committee of the
BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE
and edited by L. DUDLEY STAMP, *University of London*

Over seven years in preparation, this book is the first *comprehensive* glossary of the terms used in English-language geographical literature. It covers not only English terms but also those foreign words which appear, untranslated, in works written in English. Whenever a term is obscure, or used in different senses, or has changed its meaning, quotations from both original and standard American and British sources are given with full references. Wherever possible, the definitions given by the originators of terms are given. In addition to purely geographical terms, the book includes many terms drawn from such disciplines as geology, meteorology, climatology, soil science, and ecology. Professor Chauncy D. Harris of the University of Chicago acted as American Adviser during the preparation of the book, and both the terms included and their definitions clearly reflect American as well as British usage. *1962. In Press.*

Geography of Norden

Edited by AXEL SØMME

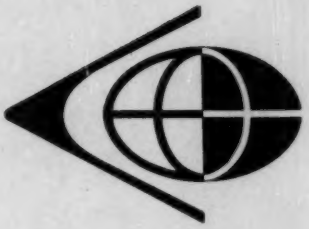
This book offers a complete survey of the geography of Norden (Scandinavia) as a whole and of the individual countries that make up the region: Denmark, Finland, Iceland, Norway, and Sweden. In order to avoid duplication of material, such topics as physical geography, climate, geology and morphology, population, and settlement are covered, for the most part, in chapters dealing with the entire region. Economic geography, on the other hand, is dealt with in the chapters devoted to individual countries. The book contains a great number of tables and figures, including many informative maps (thirteen of which are in color) and more than fifty excellent photographs illustrating regional characteristics. *1961. In press.*

Send for examination copies.

JOHN WILEY & SONS, Inc.

440 Park Avenue South New York 16, N.Y.

Van Nostrand announces
an exciting new series
of original paperbound books
in political geography



SEARCHLIGHT BOOKS

Under the general editorship of
G. ETZEL PEARCY, *Geographer, Department of State, and*
GEORGE W. HOFFMAN, *Associate Professor of Geography, University of Texas*

Van Nostrand Searchlight Books are a new series of compact, inexpensive studies in political geography. Each volume, written specifically for the series, focuses upon a particular segment of the globe which plays or promises to play a significant role in the international scene. The first four Searchlight Books will appear in February.

DIVIDED GERMANY AND BERLIN
by Norman J. G. Pounds,
Professor of Geography, Indiana University

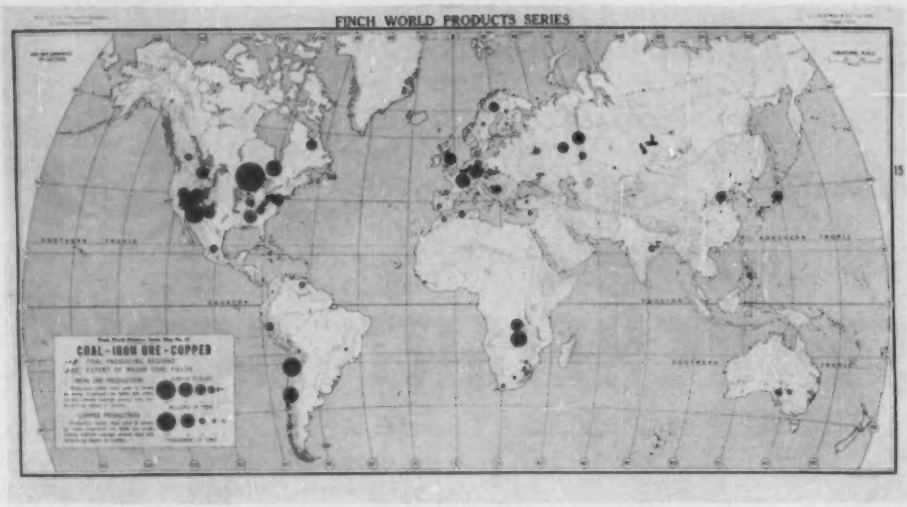
THE RUSSO-CHINESE BORDERLANDS:
Zone of Peaceful Contact or Potential Conflict?
by W. A. Douglas Jackson,
Professor of Geography, University of Washington

SPAIN IN THE WORLD
by Sax Bradford,
Deputy Director, Bureau of Educational and Cultural Affairs, U. S. Department of State

PACIFIC ISLAND BASTIONS OF THE UNITED STATES
by Herold J. Wiens,
Associate Professor of Geography, Yale University

D. VAN NOSTRAND COMPANY, INC.

120 Alexander Street — Princeton, New Jersey



TEACH WITH NYSTROM WORLD PRODUCTS MAPS

Here is a comprehensive picture of distribution of the world's major agricultural and mineral resources . . . presented in a series of eighteen large (50 x 32-inch) colorful wall maps. The current edition has been recently revised to incorporate the latest available data on production and distribution. Primary and secondary production areas are shown for such basic products as oil, iron ore, corn, wheat, and rice. The areas favorable for production and development of resources can be quickly and easily identified. Each map presents basic reference material as well as valuable information to supplement geography textbooks.

36 Mounting. Set of 18 maps, on manila stock, in chart head, with tripod $65.50

02 Mounting. Single map on spring roller with steel board and dustproof cover $13.25

Have you seen Around the World, our free in-service publication for geography teachers? In the current issue, a specialist in geography curriculum demonstrates how World Products maps can be used in environmental relationship studies. To receive a sample copy, write today for pamphlet No. JG-1161.

TITLE	NO.
Average Annual Rainfall	FW1
Density of Population	FW2
Principal Uses of Land	FW3
Wheat and Rice	FW4
Corn and Rye; Rubber	FW5
Barley, Oats, Grain Sorghums, Millets	FW6
Vegetable Fibers	FW7
Vegetable Oils	FW8
Starch Foods	FW9
Beverage Crops	FW10
Sugar and Tobacco	FW11
Fruit Crops	FW12
Cattle and Dairying	FW13
Sheep and Swine	FW14
Coal, Iron Ore and Copper	FW15
Petroleum and Water Power	FW16
Political Map and Ocean Trade	FW17
Railroads	FW18

A. J. NYSTROM & CO.

3333 ELSTON AVENUE • CHICAGO 18, ILLINOIS

The JOURNAL *of* GEOGRAPHY

Copyright 1961, by the National Council for Geographic Education

VOLUME LX NOVEMBER, 1961 NUMBER 8

SEQUENTIAL DEVELOPMENT OF INCREASINGLY DIFFICULT CONCEPTS THROUGH THE HIGH SCHOOLS*

N. V. SCARFE
The University of British Columbia

ALTHOUGH the title of this article suggests that the remarks which follow apply to all school subjects, it is my intention to confine my remarks to the subject of geography from grade 7 to grade 13. In order to develop the thought behind the title it is necessary to make clear some of its implicit assumptions.

In the first place it is assumed that geography should be taught in each of the grades 7 to 13 as a consecutively developing topic growing rather like a biological organism. Not only is it intended that the subject should be alive, vital, and actively functional for the individual; but it is clear that biological growth, not mechanical accumulation, is intended. The subject will grow with the children not by an accumulation of information and facts about the world but by development of an understanding which becomes more complex, more intricate, and more interesting as the youth proceeds through the grades. Geography, therefore, will increase in quality, in power, and in value for the students as they progress. It will be an increasingly valuable light in the mind rather than a load on the memory.

In the second place, geography is assumed to be worth learning and worth understanding because it can make a marked difference to the outlook, attitude, and ability of the future citizen. As a result of six or seven years of geographical study, a student should be a better quality person, a better functioning citizen, a more effective worker who has a richer leisure time. In addition he should have developed improved qualities of critical thinking, independent initiative and human maturity.

Implications

With these two assumptions in mind, the implications of the title of this article will be investigated. Obviously the intention is to develop a curriculum of geographical studies throughout the high school grades which will represent a sequential development of increasingly difficult concepts or ideas. If it is agreed that this might be attempted, then these conclusions naturally follow:

(a) Facts become much less important than ideas, principles, conclusions, and attitudes in geographical understanding.

(b) The old logical curriculum plan in which large areas are studied regionally or world topics systematically will have to be discarded. In-

* An address given at the Annual Meeting of the Canadian Association of Geographers, Saturday, April 8, 1961.

stead, small regions or special topics will be selected for their value in developing geographical concepts, ideas, and conclusions and not because they fit into a logical system or because they are contiguous in a continent or country. The curriculum will develop around an increasingly difficult sequence of concepts, very much in the same way as physics or chemistry curriculum is built up. Many selected detailed examples or experiments may be worked in a physics curriculum in order to prove one main principle or law. In geography, too, it is possible to select detailed examples from various parts of the world in order to prove the conclusion, for instance, that climate makes a difference to the kind of clothing that people normally wear.

(c) Descriptive awareness of associative conditions together with accurate visual images of those conditions will come long before explanations, reasons or causes. Similarly, awareness of the practical concrete problems of the earth will come before the more abstract and complicated intricacies of our industrial civilization. Put in other words, the answers to the questions "what," "where," and "how" are likely to come before the answer to the question "why," in the organization of the curriculum.

(d) The curriculum will be arranged around a sequence of important ideas. These do not have to be large in number but they have to be supported by a wealth of detail and illustration selected from various areas in the world.

(e) This approach to the geographical curriculum will require teachers to give far more attention than they do now to the growing development of skills, techniques, and abilities to use resources which geographers have at their disposal. Children in school will have much more direct contact with original material and geography will become much more a laboratory subject like a pure science. Children will be required to do a great deal of inductive thinking.

(f) The present textbook approach to our subject will be unsatisfactory, for almost all of them are based on the accumulative principle of adding more and more information to the child's mind without necessarily integrating facts into developing themes or growing sequences of ideas.

(g) Children could move from school to school without any loss because it would not matter whether the teacher chose examples from Arabia or Peru or Australia, because the main conclusion of the selections in grade 8 for instance, would be the same. This approach may seem like a systematic approach but, in fact, it is different because it depends entirely on detailed typical sample studies. It is also an inductive, not a deductive approach. Geography becomes more like a science than an art.

Difficulties

There are, however, a number of attendant difficulties which should not be glossed over. Geography is not a precise or a predictive science because it deals with human actions in all their tremendous variety. There are, therefore, few if any principles or laws. There are, however, a large number of tentative conclusions, important ideas and recurrent influences that promote the growth of the subject into a scholarly discipline.

Another extremely difficult problem is that of deciding on the main ideas to put

into this sequential development of increasingly difficult concepts. We must agree on the relative difficulty of these ideas. It is doubtful whether any absolute value can be put on difficulty, particularly as difficulty is often a question of the teacher and the teaching method rather than of the subject itself. Some teachers can make difficult concepts and ideas easily understood and some cannot. Even the best teachers can, however, discern differences in difficulty.

Suppose for example it was decided to study the idea that monsoon conditions affect life in rather a special way, it would be necessary to develop the study in the following order. First, it would be necessary to select five or six small areas in different parts of the world that exemplify particularly well monsoonal change in wind direction. In these small sample studies, the emphasis would be on the effects of the monsoon conditions on life and work. The second stage of the study would be a generalization about monsoonal conditions and an investigation of their distribution in the world as a whole. The third stage would be the explanation of the causes of monsoonal conditions again by reference to selected areas. One major idea in Geography takes a long time to teach effectively.

Important as it may seem to offer these remarks about geography, it is also necessary to devote a few minutes to children and their growth since we hope that the subject will grow biologically just as children grow.

Biological Growth

The adolescent stage from twelve to fifteen years is a period of transition from childhood to adulthood. The young person is leaving what is appropriate to childhood without yet possessing the attributes of the adults. He is consciously and unconsciously struggling with both internal and external forces. It is also a period of transition from imagination to thought but it is thought that is not yet fully scientific. Thought begins to be exercised by itself in vacuum and the young person becomes capable of abstraction, which means that he is capable of understanding cultural things of the mind and the heart. Adolescence is a stage of self-dissatisfaction when the young person is still very sensitive to blame and praise. He, therefore, tries to free himself from the influence of parents and teachers and to act for himself. He often rebels against any check and against any authority—hence, we often call it the ungrateful age.

After the age of fifteen, reason begins to be applied to understanding and to justifying the world and society. Between fifteen and eighteen is the age of problems. The dominant interest is social life, its different manifestations, and its spiritual values—all of which are examined and criticized. A young person seems to discover that everything around him is old-fashioned. He would like to rebuild everything. He has the mind of a reformer, and notes, for instance, among adults the opposition existing between the ideal and the real, between the principles which they and he affirm and their way of living—hence there are great perplexities. This is the age of intellectual fanaticism. The young person is incapable of admitting the exception to the rule, of perceiving complexities and the finer points of concrete cases, or of weighing the pros and cons. This is the age of pure functional activity of reason, but the mode of thought is still to some extent pre-scientific. He tends to reason on the plane of the first principle, but as he grows older he develops a philosophical tendency and becomes preoccupied with the great problems of life, of death and of reconciliations between faith and science.

The adolescent has a great desire to master his instincts that are in chaos and so develops a taste for books dealing with character formation. He has a wide awake awareness of self and desires to become

somebody, to play a part and be recognized by others.

This is the stage too, in which the young person develops an aesthetic sense, for poetry, music, painting and theatre—with preference for heroic and romantic themes. The social sense evolves at this age where the gregarious period ends. Social relations become personal, group work is not very successful.

Psychological Arrangement

It is now important to try to apply these psychological characteristics of youth to a psychological arrangement of geography. The age of twelve to fifteen may be described as the correlation stage or the period when the child should be able to use efficiently all the tools of the geographer to discover the relationships between the natural and the cultural landscapes. This is the age of classification, tabulation, selection, and organization, the age for the development of an ordered plan in which relationships can be recognized. This is also the analytic stage, and an occasion when geography and history should be taught quite separately.

It is not until the age of fifteen to eighteen that we arrive at the stage called systematization or generalization. It is, of course, the age when ideals are formed as a result of conclusions drawn from previous studies. The conclusion to school studies is not necessarily the achievement of a vast store of knowledge for its own sake, interesting though it may be. It is the acquisition of the ability to use knowledge and apply it to useful purposes and social problems which matters. This is the phase when subjects come together for the purpose of general cultural education, but they may also diverge for the purpose of specialized vocational education.

General education concerns itself with the problems of everyday living in the world and brings all school studies together in order to throw light on political and social problems in the world around.

This is also the time to consider moral issues and ethics. Young people must not only use their knowledge to make sure that all the evidence necessary for offering a solution to the problem is available; but they must also consider what ought to be the right, good, and wise action to take. International goodwill as an issue by itself could be discussed very usefully at this stage.

Arising from this information comes the knowledge that not only is the geography teacher hoping to develop intellectual concepts but also emotional attitudes and feelings. One of the important attitudes that a geographer hopes to encourage is a love of the subject and a wish to continue its study throughout life. Another attitude, of course, is an appreciation of the value of geography for the ordinary citizen, whether he is reading a newspaper, listening to T.V., or travelling during a vacation period. Besides these there are personal attitudes which people achieve through a careful and thoughtful study of the subject and the chief of these attitudes is called international goodwill or international understanding and sympathy. A good geographer tends to acquire respect for the problems which people in other lands must face. Furthermore, the geographer is likely to look for the good qualities of persons overseas and to refrain from making quick prejudiced statements. A geographer does not like to use the words "primitive" or "backward" or "peculiar" or "stupid" when referring to the dress or the houses or the methods of agriculture in other lands. He is likely to feel that much of what happens in other lands is sensible. Even if, at first, activities seem unreasonable, it is probably not the fault of the persons there that they are so. A geography teacher hopes that a sympa-

thetic understanding of the conditions and occupations of other peoples all over the world may develop.

At the adolescent age, attitudes of tolerance and broadmindedness should be developed from geography. Willingness to defer judgment until sufficient information is available should be encouraged. At the adolescent stage, too, a realization of the interdependence of different countries and regions and the need for trade should be an important outcome of the teaching.

At the age of fifteen to eighteen students usually develop an appreciation of the beauty of other lands and they may often get a thrill by discovering how closely man and nature have adjusted one to the other. There should also be a growing sense of responsibility towards the rest of the world, and a tendency to avoid blaming other people or nations for many of the things which are simply a result of natural difficulties. The later adolescent should also show an increased interest in the problems of the various countries of the world and a real desire to take some part in the solution of the difficulties. There should be some willingness to take part in promoting group or national or world welfare, and a realization that people all over the globe are interdependent.

The achievement of these attitudes is by no means easy. It is never done by direct attack or by didactic measures. These attitudes are acquired very incidentally, very indirectly, very subtly as a result of the good teaching of a curriculum based on a sequence of developing ideas.

Future Curriculum

If we may now look a little more closely at the possible pattern of a future curriculum for geography, it has been suggested that the major concepts in grade 7 should be concerned with the way in which the physical environment influences the work and life of people in selected areas of the world. In grade 8 those areas of the world which illustrate the influence of economic as well as physical factors on the human use pattern should be chosen, whereas in grade 9, social, historical and political influences should be added to the physical and the economic. By this method the pupils are asked to consider more and more complex relationships by introducing more and more factors or if we like, more and more unknowns into the quadratic equation concerned with understanding human life.

Obviously no generalized study of continents and oceans is envisaged at this junior high school stage. Before the age of fifteen, world problems are not a suitable study as such. Certainly at the junior high school stage, small typical selected samples are all that are envisaged. The basic philosophy of geography should be the means of uniting the various items in the curriculum, and the sequence of ideas should be developed very much as a story is developed in the chapters of a good novel. A good novel seeks, by selecting various episodes of a person's life, to build up certain characterizations and to lead to a conclusion which is applicable to other walks of life. It is, in fact, the theory of story book writing that is behind the thesis advanced today. The story of geography, of course, illustrates how the subject contributes towards the solution of social and political problems. In this way, we avoid the superficial survey type of geography. Instead what has been substituted is a selected sequence of studies in depth, so that geography becomes real, vivid, and concrete to the children.

At the Senior High School stage the first year of the three year period from fifteen to eighteen should be devoted to an emphasis on the economic problems of the world with a special correlation between geography and economics. Inci-

dentally, it is important to state that a development of a sound judgment and a critical sense are just as important as the achievement of solutions to economic problems. Some people suggest that the age of sixteen is best devoted to the correlation between physical sciences and geography, whereas the final year is often more closely devoted to the correlation of history and sociology with geography. In each year an attempt is made to show how geography can throw light on economic, scientific, and social problems in the world.

Methods

It remains now to add something about the methods of teaching; even though we know a great deal about children and about geography, it is also important to make sure that the ways of teaching maintain interest, develop attitudes, and promote the use of acquired concepts.

It is just as true of the high school as of the elementary school that children acquire intellectual competence and desirable attitudes mainly through their own efforts and by methods which encourage them to investigate and search out the answers to problems for themselves. Educators call these activity methods. They involve a close acquaintance with the real world as far as it can be arranged in the school. Outdoor observation, careful study of photographs, and use of maps on the scale of 1/50,000 are all important. Far too little use is made of maps in school, and far too little training is given in their use. Although atlases are provided in some schools, many children are totally illiterate as far as understanding them is concerned.

Even at the ages of fifteen to eighteen, young people still gain a great deal from direct contact with reality and they enjoy active discovery just as much as any research worker does. Unless the methods used in teaching geography emphasize the importance of the vital, colorful, real details and avoid the delusion of verbalism, no curriculum will be satisfactory.

Isaiah Bowman wrote many years ago, in his book *Geography in Relation to the Social Sciences:*

> A textbook, for all its usefulness, and the need we have for it, tends to devitalize its subject because of its necessary emphasis on generalization. Every step taken toward simplicity of expression in describing complex things tends by so much to imperil accuracy unless the author is first a scholar. That is why so much elementary education is a mere noise in the throat. Instead of a sense of reality we have neat strings of words. To some degree, averages and generalizations are necessary even in the elementary teaching, if we are to get breadth of view. We do want to know what the world is like beyond the rim of our own horizon, but we should avoid flattening out the globe. We can't travel everywhere and see everything. We must use broader and broader terms if we expect to "encompass the earth." It is a nice question how far to carry the broadening process, for the tendency clearly is to get at last an earth such as never was since darkness ceased to brood on the face of the deep. That is why textbook writing and educational methods need always to be freshened by the springs and streams of research that flow out of realities or of attempts to get nearer realities.
>
> . . . As a young man I used to teach the trade winds from the small generalized maps to which I had access, and I thought I knew where they blew, and why, and how. Years later I went down the west coast of Peru and was so disturbed by their absence that I spoke to the captain of the vessel about them. "Where are the trade winds?" "They never blew along this coast, young fellow." My geography said they did. At least three geography texts published in the United States still say they do! A fourth states that the Peruvian current brings cold air with it from the Antarctic! I wish that the authors of these texts could stand in one of the coastal valleys of Peru and feel the eleven o'clock breeze that blows violently *from* the sea toward the mountains; or that they could experience the dead calm of sunset along the Chilean coast following the afternoon gales from the sea. The realities of desert and cold coastal current and blockading Andes are so much more complicated and interesting than the simple features of the baneful texts that teach a wind system out of which every drop of reality has been wrung.[1]

This long quotation epitomizes the problem of teaching geography. It shows

[1] Isaiah Bowman, *Geography in Relation to the Social Sciences*, Charles Scribner's Sons, New York, 1934, pp. 55-56.

how necessary detailed studies are before generalizations should be permitted. The generalizations are, however, the major purpose of the study—the linking ideas of the story which develops progressively towards increasing complexity. Much of the confusion in geography stems from the fact that the main ideas are so simple to state but extremely difficult to explain or comprehend. No one doubts the simple statement that the physical environment makes a difference to the life and work of mankind. Few question the fact that the physical environment often presents problems over which men have little control. It looks an easy step to suggest that sympathetic understanding should develop from the acceptance of the first two propositions. Yet in fact these three simple ideas are about as complex and as difficult to understand in their full intricate reality as any that I know. It takes years to understand the subtleties, the special circumstances, and the great variety of conditions that are involved in simple generalizations. Unless there is the background of detailed evidence and deep scholarly study all generalizations are shallow, pretended wisdom or neat strings of words.

It is possible that the main ideas or concepts to be taught are extremely few in number. They may be supported by a great variety of examples, but two things are certain. A proper understanding of geography is very worthwhile, and a proper understanding takes much time and patience.

A JOINT EFFORT TO IMPROVE HIGH SCHOOL GEOGRAPHY

GILBERT F. WHITE
University of Chicago

THROUGH their joint committee on Education, the Association of American Geographers and the National Council for Geographic Education have joined in an effort to improve the teaching of geography in high schools. A grant of $55,000 has been received from the Fund for the Advancement of Education to support the early stages of the program, and work now is under way.

The Joint Committee is composed of the following: Co-Chairmen Clyde Kohn, State University of Iowa, and Gilbert F. White, The University of Chicago; Norman Carls, University of Pittsburgh; Preston James, Syracuse University; Phillip Bacon, Teachers College, Columbia University; Clarence W. Olmstead, University of Wisconsin; Mary Viola Phillips, University of Pittsburgh; and Samuel Van Valkenburg, Clark University.

The general program was outlined in a statement prepared by the Joint Committee last year. The statement, modified slightly to suit the present time schedule, is given below.

Need for Improvement in Geography Teaching in the High School

Recent studies of the status of geography throughout the schools of the nation show that while there is increasing awareness of the basic importance of elementary geographic ideas and skills, and while numerous school systems have expressed interest in making large-scale improvements in their geography teaching, the rate of improvement is likely to be distressingly slow unless certain unorthodox steps are taken to make available these ideas and skills quickly on a wide base and in such form that teaching may be affected promptly. Without discounting the value of the urgently needed new textbooks, of changes in school curricula, and of revisions in teacher-training ef-

forts, it would seem wise at this stage to attempt to plan a high school course which could be produced on tape for use with film and on television. Rather than to do away with the teacher, the object would be to suggest fruitful ways of assisting the teacher through tape and associated study guides, map and globe materials, and other laboratory materials. The acute need for disciplined training in looking at our complex world from a geographic point of view, and the rapidly growing body of geographic thought that is susceptible to being taught at the high school level make the time ripe.

Geography is a subject which lends itself particularly to the use of pictorial, graphic, and cartographic material. The fact that it is being taught in both the social studies and general science and conservation curricula makes the design of one set of materials a special problem.

The problems, national and international, which face the United States demand in unprecedented degree a citizenry that is informed about the peoples and lands of the world.

The Association of American Geographers and the National Council on Geographic Education have joined in a common enterprise. Our joint committee is authorized to act for both groups in planning the proposed new program. We would hope to move toward it in five separate steps.

Step 1. Definition of Basic Ideas and Skills

As a first step the AAG-NCGE Committee on Education would appoint a working group, including high school as well as university teachers and research men. The co-chairmen of the joint committee would serve as ex-officio members. The group would define the basic ideas and skills which it is believed could be taught at high school level. This would not take the form of a course design, but it would indicate a series of items which might well be incorporated into a course, and would suggest ways in which they might be taught effectively.

To accomplish this aim would require two intensive working sessions of about one week's duration with a period of several months in between to revise and specify ideas. Out of the second working session would come a draft statement.

Step 2. Review of the Draft Statement

Once a draft statement had been prepared, it would be circulated to a much larger group for comment. At a conference these comments would be reviewed. The initial working group would be enlarged for this purpose and it would be expected that it would include a geographer who would have been selected as a suitable person to carry the major burden of organization and instruction in the event that the effort reaches the production stage. The emphasis would still be on major ideas and promising methods and not on an agreed curriculum: we do not want to water down new and challenging ideas by seeking committee agreement.

Step 3. Experimental Stage

Anticipating the results of the review conference, we would hope to have arranged with several school systems to undertake during some part of the school year 1962-63 to experiment with the ideas and methods which emerge from that conference. For example, we have reason to think that the systems of Waterloo, Iowa, and Chicago, Illinois, might be open to experiments with their newly established classes. The Midwest Program on Airborne Television Instruction offers another possibility. We think there will be no lack of interested school systems. In each case, we would arrange for collaboration between the co-operating schools and a nearby co-operating university. At this point, the geographer who would be carrying the burden of responsibility

would be on the job. At the end of the year, there would be a session of the review conference at which there would be appraisal of the trial runs. Obviously, these would not be tests of the kind of tape which might be produced. They would, however, establish the feasibility and teaching needs for dealing with such new concepts as those which have emerged from modern geophysics and central place theory, to name only two fields.

Step 4. Detailed Planning

The conclusion of step 3 should indicate whether or not there is likely to be high return from taking the next and most costly step. Here, we think we have learned something from the experience of those involved with the physics, chemistry, and biology courses. The preliminary trials should have shown us the most promising lines along which to move. At this writing, we would anticipate that it would be necessary to place responsibility for detailed planning in the hands of one person, as director, with an advisory committee appointed by the two organizations. The job would be likely to continue two years, and to claim the help of the best minds in the field. The director should be liberated from other duties.

Step 5. Production

Once the detailed planning is nearing completion, contracts could be negotiated with one of the production companies to make the tape. We would be prepared to have the work filmed so that it might be used in discrete parts, but would want it designed and organized so that it could be used as a complete course.

Estimated Cost

Our preliminary cost estimates assumed that the fifth step would be carried entirely at the expense of the producer. The fourth stage would require a large amount of design and planning, using classroom situations where appropriate. New map materials, cheap globes and other special laboratory materials would have to be developed. Our first estimate is that it would cost approximately $700,000.

The preliminary trial should be relatively inexpensive because of the interest of the co-operating school systems. Assuming modest grants to each collaborating system, and a small amount of co-ordinating effort, they should cost not more than $55,000.

The first and second steps should be financed as a unit. Assuming some staff assistance and the payment of travel expenses for participants in the three working sessions, the cost should run about $45,000.

Procedure

If only the first three steps were to be completed, they would result in national discussion, new publications, and live experiments which would have large value in themselves. If we were to be justified in moving into the fourth step, we would expect to seek additional support upon the basis of the results to that date.

In terms of probable effects upon modes of thought about the world, we believe that investment in this effort at this time offers large returns.

Work on steps 1 and 2 is under way. William D. Pattison of the University of California, Los Angeles, has been appointed as full-time director. Members of the working group described under step 1 are:

Edward Biller, Supervisor of Geography, Baltimore Secondary Schools;
William Garrison, Professor of Geography, Northwestern University;
Norton S. Ginsburg, Professor of Geography, University of Chicago;
Edwin Hammond, Professor of Geography, University of Wisconsin;
Stephen Jones, Professor of Geography, Yale University;

Fred Kniffen, Professor of Geography, Louisiana State University;

Harold McCarty, Professor of Geography, State University of Iowa;

Clyde Patton, Professor of Geography, University of Oregon;

Ross Pearson, Professor of Geography, University of Michigan;

Jewell Phelps, Professor of Geography, George Peabody College;

Herbert Peterson, Teacher, New Trier High School; and

Henry J. Warman, Professor of Geography, Clark University.

Inquiries about the Joint Committee's program should be addressed to William Pattison.

OUR NATION'S SCHOOLS NEED A RADICAL REHAUL ACCORDING TO SECONDARY SCHOOL STUDY COMMISSION

NATIONAL EDUCATION ASSOCIATION

If the United States expects to keep up with the world around it, the nation's schools must begin to change drastically—now.

This is the conclusion reached by the Commission on the Experimental Study of the Utilization of the Staff in the Secondary School, after a five-year study and evaluation of school organization. The Commission was sponsored by the National Association of Secondary-School Principals (NASSP) and supported by the Ford Foundation and the Fund for the Advancement of Education.

Faced with the prospect of a critical teacher shortage for many years at a time when education needed to be improved, the Commission in 1956 began to explore how to use present staff members more effectively. As the experiments and evaluations grew, the Commission evolved a new pattern for the school of tomorrow. A description of this school and a blueprint for developing it are part of the Commission's summary report, *Focus on Change: Guide to Better Schools,* published in paperback book form by Rand McNally & Co.

As a premise for radical change, the Commission found these faults with the American secondary school today:

"Few high school graduates have achieved adequately the skill of independent study, nor has much happened to make them feel that they should."

Professional teachers waste two-thirds of their time each school day on tasks that could be performed by other persons or by automated devices. ("The setting in which teachers are required to work may inhibit the most competent, creative teaching.")

In the area of curriculum the present "rigid units of the school day" are an unnatural and illogical way to present content. A more natural division would be to provide basic content for all students and depth content for those with particular ability and interest.

Schoolhouses are not designed for educational purposes. ("School buildings mirror our educational concepts. America has a predilection for straight lines, rectangles, squared-off blocks, and nowhere is this more true than in the usual schoolhouse.")

A New Kind of School

Because it found reforms in the current educational framework too static, the Commission formulated "a new kind of school":

Some classes will be much smaller, some much larger. Small group discus-

sions will be held in classes of 15 or fewer pupils. About 40 per cent of a student's time in school will be spent in classes ranging from 100 to 300 students, depending on the nature of the presentation (a film or TV program can be shown to 300 or more).

Many more opportunities will be provided for independent study. Another 40 per cent of a student's schedule will be spent at creative, independent work, varying with the age and ability of the student and the stage of the change-over program in the high school.

The school of the future will employ more adults to work with students, but fewer will be professional teachers. Aiding the professional teacher will be staff specialists, community consultants, general aides, clerks, and instruction assistants.

School buildings will reflect the new organization. Room sizes will be flexible, spaces for independent study will be located near resources centers, *i.e.* the library; buildings will be equipped for permanent TV and automated instruction; and teachers will have individual spaces for class preparation and student interviews.

Class schedules will be more flexible. For example, a tenth-grade student may spend 12 hours a week in large-group discussion, six in small-group discussion, and 12 hours in independent study.

The individual differences in teachers will be recognized through team teaching, differentiated assignments and work loads, and salary differentials. Talented, career teachers will be able to reach salaries of $15,000 to $20,000 a year.

The "ice tray" concept of curriculum will give way to individual challenges, with the division into stages or steps rather than years or grades.

Other criteria of the school of the future will be greater evaluation of student and teacher ability and performance, principals who are educational rather than just administrative leaders, and funds that are spent more wisely. ("For example, at a time when there is so much to learn and not enough time or money for the learning, is it possible to reduce the number of interscholastic competitive events?")

Suggested Methods of Change

The Commission, realizing that no school exists in the United States today on the pattern it recommends, has an entire how-to-do-it chapter of several specific steps which schools could take now. Reorganizing instruction could begin, for example, by scheduling large group classes of 100 to 150 students several times a semester, with a teacher especially competent in some phase of the class subject making the presentation. The task of meeting individual differences could be started by planning individual programs only with those teachers and students who are particularly interested. A start could be made toward team teaching.

Experiments

Another chapter in *Focus on Change* evaluates some of the more than 100 experiments conducted by the Commission in secondary schools throughout the country during the study.

Final Report

Focus on Change is the fourth and final report of the Commission. More than 100,000 copies of the three previous preliminary reports have been distributed. Authors of the final summary were J. Lloyd Trump, director of the Commission and associate secretary of the NASSP; and Dorsey Baynham, former managing editor of *Education, U.S.A.*

Members of the Commission include Lloyd S. Michael, principal, Evanston Township High School, Evanston, Illinois, chairman; Matthew P. Gaffney of Dorset, Vermont, formerly with the Co-

nant project on the American high school; Herman A. Gruhn, principal, Sierra Junior High School, Riverside, California; C. W. Sanford, dean of admissions, University of Illinois at Urbana; Clifford Skinner, principal, Cleveland High School, Portland, Oregon; J. G. Umstattd, professor of secondary education, University of Texas at Austin; Glenn F. Varner, assistant superintendent for secondary and vocational education, St. Paul, Minnesota, public schools; Raymond G. Wilson, executive secretary, Commission on Secondary Schools of the Southern Association of Colleges and Secondary Schools, Atlanta, Georgia; James E. Nancarrow, principal, Upper Darby, Pennsylvania, High School and President, National Association of Secondary-School Principals; and the two associate directors of the Commission, Robert B. Moore and Lee D. Pigott.

EDUCATION IN THE HUMAN USE OF FLOOD PLAINS[1]

IAN BURTON
University of Toronto

Aims and Scope

THE PURPOSES of this paper are to call attention to some recent developments in the study of the human use of flood plains in the United States and to some new materials which are becoming available. The flood problem of the Kansas River at Topeka and a new flood hazard map for the area are both described. Possible implications for geographic education are suggested.

Relevance to Geographic Concepts

The two main ideas which are generally accepted as dominating themes of geographic study are (1) man's relationship to his physical environment, including his use of natural resources and (2) man's organization of his activities in space. An example is here provided of some of the ways in which one resource (flood plain land) is being used, together with some comments about the arrangement of human activities in relation to it.

[1] This paper stems in part from studies supported by Resources for the Future, Inc. The author wishes to thank Gilbert F. White for helpful comments on the draft of the paper.

Educational Aspects

The use of flood plains as a case study in this connection has several advantages from an educational point of view. The widespread distribution of flood plains means that an example of this resource lies within easy reach of most schools. Some cities with flood problems are shown in Figure 1 and there are undoubtedly others. This enables on-the-spot field observations to be made in an area with which the student is familiar. Aspects of his environment previously unknown to him, or not realized, can be pointed out with advantage and his eyes may be opened to his surroundings in a new and stimulating way.

In the complex problem of man's relationship to his environment, students may gain greater insight by focusing on one element (flood plain land) so that the total number of factors to be considered is greatly reduced. Also the problem of the wise use and management of resources may be illuminated more clearly by emphasis on one resource. In the case of flood plains the interests of various parties (taxpayers, realtors, legislators, home owners, government agencies, and

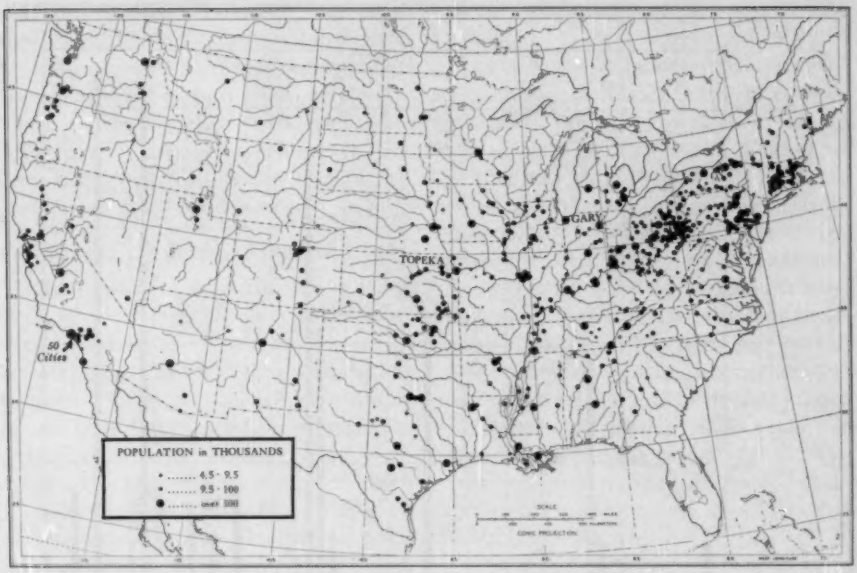


FIG. 1. Cities with flood problems.

industrialists) are seen to be sometimes compatible, sometimes at variance.

The Costs of Resource Use

The utilization of most resources is achieved only at some cost. At an elementary level this may be the cost of transporting the resource from the place where it is found to the place where it is used. At another level it may be the cost of developing the resource into a usable state, and of processing into a final product. In the case of flood plains the former cannot be said to apply, while the second may not always be relevant. Certain flood plains may be capable of use without special preparation, although most will require careful handling of such problems as drainage and perhaps bank erosion. There is a special cost resulting from flood plain use which may be quite high at times. This is the cost of damage caused by floods (Fig. 2). Floods are highly irregular both in time of occurrence and in magnitude, and many flood plains are flooded at rare intervals only. To an individual or group contemplating the use of a flood plain for some purpose, the threat of a flood may seem very remote and unimportant compared with the advantage of using this resource at other times. The advantages may include access to waterborne transportation or the availability of level land for factories, houses, or farms. The low gradient of valley floors is also a well-known factor, inducing their use by highways and railroads which may in turn increase their attractiveness for other purposes.

Evaluating a Resource

Both individuals and groups within a society need to make some evaluation of the advantages and disadvantages of using a given resource. There is evidence to suggest that in the case of flood plains insufficient attention has been paid to this evaluation by the resource users themselves. The flood hazard has often been appraised inaccurately, if at all, and this has led to the development of a vicious cycle in some places.

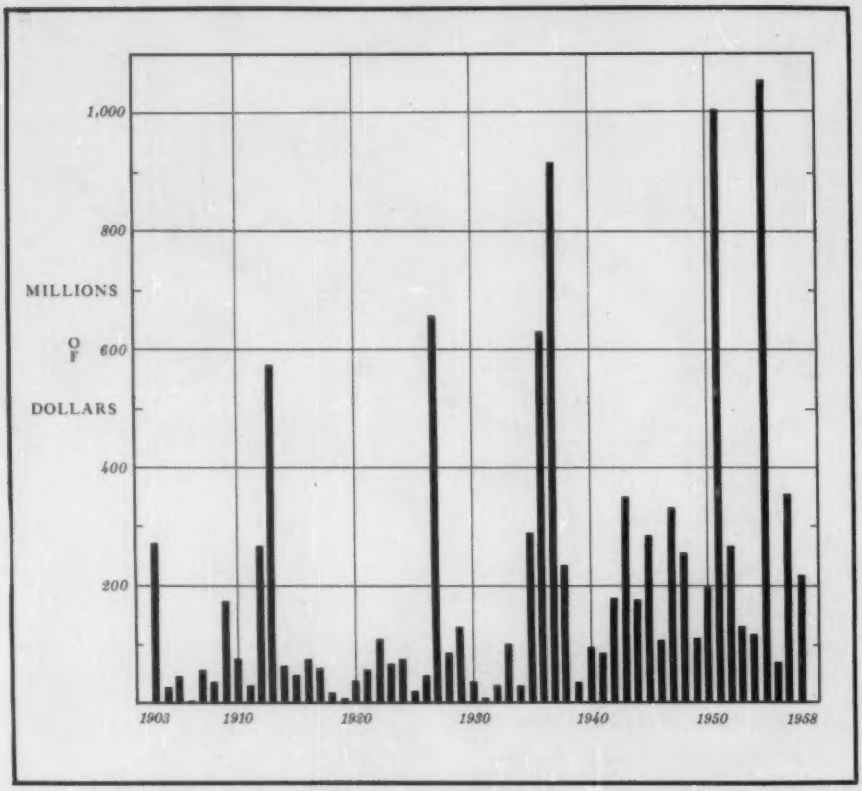


FIG. 2. Estimated annual flood losses, 1903-1958 (Source: U.S. Weather Bureau. Adjusted to 1957 price levels by Roland C. Holmes).

Although the early pioneers usually seem to have learned to avoid flood plains, and to build their settlements above the danger area, later expansion has moved into the path of floods. When the inevitable flood has exacted its toll, the response of more modern generations has been to attempt to control the floods rather than to withdraw from the flood plain. Protection against the flood hazard, often undertaken on an increasingly lavish scale, has itself acted as a stimulus to the further development of some flood plains. This may be explained in part in terms of the common belief that protection works prevent flood losses. This is not the case. It has proved to be financially impracticable to build protective works such as dams and levees large enough to contain floods of a low order of probability. There will always be a flood which exceeds the magnitude of that discharge for which the flood control works were designed.

Some Results of Resource Use

Flood plains have been increasingly used at the cost of expensive protection works and occasional catastrophic flood losses. This pattern of resource use does not appear to have been wise. Indeed in places it amounts to folly. Recent studies have drawn attention to an apparent rise in flood losses in spite of a considerable

expenditure for flood control.[2] The magnitude of this rise is illustrated in Figure 2. This increase in flood damage has been attributed in part to an actual increase in the number of floods.[3] The larger part of the increase, however, has been caused by "continuing human encroachment upon flood plains."[4]

Combatting the Rising Trend of Losses

Several ways of arresting the upward trend of flood losses have been suggested. White and others have called for a broader range of choice in making adjustments to flood hazards.[5] In addition to the traditional measures of such engineering works as dams, levees, floodways, and channel improvements, there are other possibilities.[6] The land itself may be elevated and buildings may be flood proofed.[7] In the event of a flood, various emergency measures such as removal of property, flood fighting, and the rescheduling of activities may be undertaken. Public relief is sometimes provided for flood victims; and flood insurance remains for the most part a possibility for the future but awaits further action by the Federal Government. Lastly, and of major importance, the literature on flood plain regulation to control further encroachment is expanding rapidly.[8]

The Chief of Engineers has recently stated that at the present rate of expenditure flood protection will "just about keep up with the increase in flood damage that may be anticipated by 1980 as a result of the flood plain development over the next two decades."[9] In other words, the present program of flood control will only hold flood damages constant while spending about two or three hundred million dollars a year. In the view of the Corps of Engineers there exists "the need for action over the next two decades to regulate flood plain use so as to avoid, to the extent possible, the creation of new flood problems and damages, and to reduce the necessity for Federal expenditure."[10]

Applying the Solution: Some Opportunities for Teachers

The recognition of a problem in resource use and the careful elaboration of its possible solutions is only a first step.[11] There remains the second step which is the task of successfully applying the solution. One aspect of this, upon which it may depend in part, is public education. In this latter connection two developments have recently occurred. First, the United States Geological Survey has started to issue a series of maps depicting flood hazard areas. Second, the United States Congress in its 1960 legislation has charged the Corps of Engineers, for the

[2] Gilbert F. White, *et al., Changes in Urban Occupance of Flood Plains in the United States,* Department of Geography Research Paper No. 57, University of Chicago, Chicago, 1958.

[3] William G. Hoyt and Walter B. Langbein, *Floods,* Princeton University Press, Princeton, 1954, p. 88.

[4] Gilbert F. White, "Strategic Aspects of Urban Flood Plain Occupance," *Journal of the Hydraulics Division, Proceedings of the American Society of Civil Engineers* 86 (February, 1960), 89-102.

[5] White, *et al., op. cit.,* p. 232.

[6] The full range of possible adjustments is examined in Gilbert F. White, *Human Adjustment to Floods,* Department of Geography Research Paper No. 29, University of Chicago, Chicago, 1942.

[7] John R. Sheaffer, *Flood Proofing: An Element in A Flood Damage Reduction Program,* Department of Geography Research Paper No. 65, University of Chicago, Chicago, 1960.

[8] See for example, Francis C. Murphy, *Regulating Flood-Plain Development,* Department of Geography Research Paper No. 56, University of Chicago, Chicago, 1958.

[9] "Floods and Flood Control," Select Committee on National Water Resources, United States Senate, Eighty-Sixth Congress, Second Session, Committee Print No. 15, 1960, p. 29.

[10] *Ibid.,* p. 30.

[11] William R. Brueckheimer, "Conservation and the Nature of Social Problems: A Proposed Shift in Emphasis," THE JOURNAL OF GEOGRAPHY, LV (April, 1956), 194-200.

first time, with the responsibility for the collecting and disseminating of flood information.

Taking this second development first, the Flood Control Act of 1960 authorizes the U. S. Army Corps of Engineers to provide information on floods to local interests in view of "the increasing use and development of the flood plains . . . and of the need for information on flood hazards to serve as a guide to such development, and as a basis for avoiding future flood hazards by regulation of use. . . ."[12] Here is an opportunity for teachers to take constructive steps towards the creation of an informed public opinion by introducing the topic into the classroom.

The *second* development, the production of flood hazard maps by the Geological Survey, is directed towards the same general objectives as the new legislation in 1960. In this case a more tangible opportunity is presented to teachers. Here is a tool which can be used in the classroom as well as in the field. The maps are being designed to inform citizens of the nature and degree of the flood hazard. Although they were not drawn with school use specifically in mind, they can be so used with profit. At the time of writing, one such map has been published for Topeka, Kansas,[13] and maps for the following areas are in preparation:

Flood Hazard Maps	Status of Work
Niles, California	Field work underway
Boulder, Colorado	Open-file report completed; Hydrologic Investigations Atlas being prepared
Chicago Heights, Illinois	In Publications Division (HA-39)
Des Moines, Iowa	Being processed for publication
Wichita, Kansas	Field work underway
Raritan, New Jersey	Second of a series of four open-file reports completed
Barberton, Ohio	Being processed for publication
Canton, Ohio	Being processed for publication
Chillicothe, Ohio	Being processed for publication
Circleville, Ohio	Being processed for publication
Columbus, Ohio	Being processed for publication
Fremont, Ohio	Being processed for publication
Mount Vernon, Ohio	In Publications Division (HA-40)
Newark, Ohio	In Publications Division (HA-44)
Springfield, Ohio	In Publications Division (HA-43)
Warren, Ohio	Being processed for publication
Youngstown, Ohio	Being processed for publication
Zanesville, Ohio	Being processed for publication
Harrisburg, Pennsylvania	Field work underway
Fairfax County, Virginia	Field work underway
Chattanooga, Tennessee	Field work underway

The remainder of this paper is devoted to a description of the Topeka map, for which some background information is provided, and to its application in two teaching situations.

The Kansas River at Topeka[14]

Before proceeding to a consideration of the map itself a short summary of the flood history of Topeka is presented. This provides an example of the spatial arrangement of man's activities in relation to the flood plain resource, which can be duplicated by the examination of other cities.

Topeka was founded on the bluffs on the south side of the Kansas River in 1854. If earlier settlements had been es-

[12] 74 U. S. Statutes 480, Flood Control Act, 1960, Public Law 86-645, 86th Congress, Second Session, July, 1960.

[13] Department of the Interior, U. S. Geological Survey, Hydrologic Investigations Atlas HA-14, *Floods at Topeka, Kansas,* Washington, D.C. 1959.

[14] For a more detailed discussion of this topic see Wolf Roder, "Attitudes Towards Future Flooding at Topeka, Kansas," in Gilbert F. White, ed., *Papers on Flood Problems,* Department of Geography Research Paper No. 70, University of Chicago, Chicago, 1961.

tablished on the flood plain, they were soon abandoned in favour of the elevated site on the bluffs. For the first twelve years Topeka remained a town on the bluffs, but in 1866 railroad connections were established by the construction of the Union Pacific Railroad on the north side of the Kansas River and on the flood plain. From this time on the expansion of Topeka down into the flood plain began, and the town of North Topeka grew up on the north side of the river opposite Topeka, or almost entirely on the flood plain. The beginnings of flood plain development were stimulated further by the completion of the Atchison, Topeka, and Santa Fe line on the south side of the river in 1868. Topeka and North Topeka coalesced into one continuous urban agglomeration, and Topeka extended further onto the flood plain in a downstream direction, into the area now known as Oakland. Since that time the cities of Topeka and North Topeka have both grown and expanded over large areas of flood plain.

These twin cities are subject to floods from the Kansas River and also from its tributaries, Shunganunga Creek on the Topeka side and Soldier Creek on the North Topeka side. There was a major flood in 1903 during which 29 people were drowned and 8,000 persons were forced to leave their homes.[15] Resulting from this flood, levees were constructed which mitigated the high stages of 1908 and 1935. In 1951, however, these levees were overtopped by several feet of water, and in North Topeka many buildings were flooded to the ceiling of the first story. The main current of the stream moved from its normal course and flowed through the city causing severe damage. Parts of the tributary flood plains of Shunganunga and Soldier Creeks were also flooded.

A plan for flood control on the Kansas River was drawn up by the Corps of Engineers in 1950 and is now in the process of installation.[16] The plan encompasses a number of reservoirs upstream in the tributaries of the Kansas River, including Tuttle Creek Reservoir on the Big Blue River. When this plan is fully in operation it is estimated that full protection against floods of the magnitude of the 1951 flood will have been secured. Until that time Topeka is open to a repetition of the 1951 flood. Even when the project is finished, however, complete immunity from flood will not have been won. An unrecorded flood of 1844 is estimated from Indian references to have exceeded the 1951 flood by six feet.

In addition to the protection afforded by the Corps of Engineers project, the South Topeka Drainage District has constructed two small flood control reservoirs on the branches of Shunganunga Creek, south of the city.

Since the 1951 flood, development in the flood plain of the Kansas River seems to have been slowed considerably, but a new development is proceeding rapidly in the Shunganunga flood plain.[17]

The Topeka Map

Into this situation of floods, flood control, and flood plain development, the United States Geological Survey has injected a map of flood hazard. Such a map may be a real contribution to the amelioration of the flood problem. In addition to the engineering works under construction, it may help in the development of other approaches to flood loss reduction.

The publication of this map rests on the need to make more accurate knowledge available to those responsible for de-

[15] Roder, *Op. Cit.*

[16] House Document No. 642, 81st Congress, Second Session. Information on flood control projects and copies of documents can usually be obtained from the local District Office of the U. S. Army Corps of Engineers. Alternatively, write to the U. S. Army Corps of Engineers, Washington 25, D.C.

[17] See Roder, *op. cit.*

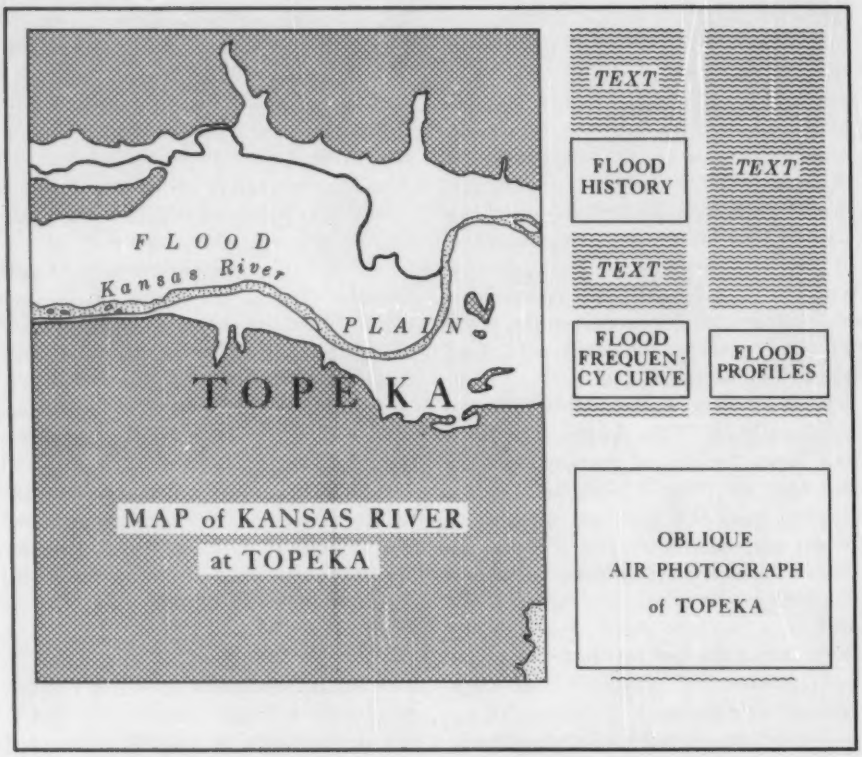


Fig. 3. Organization and layout of the Topeka Flood Hazard Map.

cisions on how to use the Kansas River flood plain. If there is public awareness of the problem and the possible approaches to it, full use is more likely to be made of the knowledge now readily available. An incidental benefit from the use of the Topeka flood hazard map in the classroom may be an increased public awareness. It is for this reason, as well as for the more direct educational benefits, that the map is now described in some detail and suggestions made for its use.

The familiar style of topographic quadrangle on the scale of 1:24,000 has been issued with a flood hazard over-print. The Kansas River is shown in dark blue, flowing from west to east across the center of the quadrangle, and the cities of Topeka and North Topeka are located on either side. A large belt of land about two and a half miles wide is colored in light blue and extends across the map on both the north and south sides of the river, dramatically portraying the extent of the 1951 flood. Within this area the smaller extent of the 1935 flood is also shown.

An explanatory text, together with three diagrams and an oblique aerial photograph, appears alongside of the map on the same sheet. The layout and organization of this sheet is illustrated in diagrammatic form in Figure 3. Each of these items is described below.

The Features of the Map

In addition to the river and its flood plain a variety of other physical features are shown. The river meanders between

clearly marked levees which are seen to have been effective in 1935 but not in 1951. The tributary Soldier Creek is a good example of a *yazoo* stream on a rather small scale, which has been straightened and placed between levees in the course of the human development of the flood plain. Old meander loops and cut-offs mark the former course of the creek. The strong contrast in drainage patterns between the flood plain and the upland areas to the north and south is paralleled by the contrast in relief. The relatively level flood plain offers a markedly different environment for man's activities from the flanking upland dissected by tributary streams.

Many features of the cultural landscape are shown and can be related to the physical features in some cases. The early site of Topeka, marked by the State Capitol, the City Hall, and other public buildings, is located on the upland bluffs overlooking the flood plain. The utilization of the flood plain by industrial development is seen in several large buildings, and the lines of the Union Pacific and Santa Fe railroads, which served as a stimulus to flood plain development in earlier days, can be seen following the gentle gradient of the valley floor. More recent use of the flood plain by transportation facilities is indicated by the location of the Topeka Municipal Airport at the eastern border of the map.

Students can learn to recognize these features as portrayed on the map and to relate them one to another. The other items on the same sheet give this map an added advantage.

Supplementary Material

The printing of an oblique aerial photograph alongside of the map enables a ready comparison to be made between these two methods of portraying an area. Many of the features observed on the map can be recognized on the photograph. A simple test of the student's understanding of the map and ability to relate it to the photograph is to ask from approximately what point the photograph was taken. Buildings marked on the map but not identified can be described by relating information from photograph to map. An example of this is the grain elevators in North Topeka.

The three diagrams printed above the photograph also have educational value. One graph shows the flood history of Topeka from 1900. Once understood, this illustrates with great clarity the unpredictable nature of floods both in time of occurrence and in magnitude. Accurate information about past floods does not enable us to say when the next flood will come or how large it will be. The gaging station at which most of these records were obtained is marked on the map at the Topeka Avenue bridge.[18] The relative heights of the 1903, 1935, and 1951 floods can be compared with each other and with the smaller and more numerous floods.

The second graph presents a stage frequency curve which can be used to estimate the frequency of occurrence of past and future floods. The 1951 type of flood is likely to occur once in every 120 years, while the 1935 type of flood has an average frequency of once in about every 15 years. This information needs to be used with caution in order to avoid misinterpretation. The fact that a large flood took place as recently as 1951 does not necessarily mean that a long interval must elapse before the next major flood. If a coin is tossed and caught in the hand there is a fifty per cent chance that it will

[18] Information on local gaging stations can be found in the Water Supply Papers of the U.S. Geological Survey or from the District Office, which is usually located in the state capital. A visit to a gaging station can be included in a flood plain field trip, and the Geological Survey may be able to put teachers in touch with a person who will open the gage house and explain how it operates. Further information can be obtained from the U.S. Geological Survey, Washington 25, D.C.

"come down heads." When it is tossed a second, third, or any number of subsequent times, the chance of "coming down heads" is still fifty per cent. The result is in no way influenced by the outcome of the previous toss. The history of flood events may be used as an excellent illustration of this principle.

The third item on the sheet is a diagram illustrating the flood profiles for various stages or heights of water in the river. By relating the elevations on the profiles to the heights above mean sea level shown on the map, it is possible to estimate the approximate height of the water at various points on the map. For example the height of the water at the junction of Central Avenue and Kansas Avenue in North Topeka, slightly down stream from the gage, was about 893 feet in 1951. The elevation of this point shown on the map is 878 feet above sea level. By subtraction we obtain a height of about 15 feet above street level at this place. The calculation of water heights for various points during successive floods is a useful exercise for students with more than average ability. However an elevation of water higher than the land at some point does not necessarily mean that the point was flooded because in most cases it is clear that the levees have been effective in holding the flood waters.

Use of the Topeka Map

The map has been used twice in teaching situations, at both high school and college levels. In the high school, success can be described as moderate at best.[19] The reasons for this can only be guessed. The class was composed entirely of high school girls, mostly seniors. Perhaps girls tend to be less interested in this type of problem than boys. Other reasons may have been: (1) the method of presenting the material was too technical, (2) the students may not have been sufficiently familiar with the usual type of topographic map, or, (3) perhaps Topeka is just too far away from Chicago for the map to be sufficiently interesting.

It seems possible, therefore, that the use of this map at the high school level would be more successful if the presentation would be made more dramatic and, at least at the outset, less technical. One good device may be to introduce students to the ordinary topographic quadrangle before showing them the flood hazard map. More interest may also be stimulated by relating the Topeka map to a local flood problem. Moreover the use of the map with only one class does not invalidate or validate its use.

At the undergraduate level a relatively technical presentation was highly successful and led to an investigation of the flood problem in the local area.[20] The map was invaluable as an introduction to flood problems. Its relatively simple and straightforward presentation of information about the nature of the flood hazard was stimulating to the class. The map itself would have been of much less use without the supporting text, a photograph, diagrams, and the historical information about the growth of the city, and its expansion down into the flood plain. Students were provided with information about the development of protective works of the Kansas River flood plain, and came to an understanding of some of the complexities involved in the human use of flood plains.

The Little Calumet Study

Having become familiar with the national flood problem as described in the early part of this paper, and knowing something about the example of Topeka, students were then exposed to a flood problem in the local area. A field excur-

[19] At the Faulkner School for Girls, Chicago, 1959.

[20] At the Gary Center, University of Indiana. A more detailed report on this investigation may be found in I. Burton, "Invasion and Escape on the Little Calumet," in G. F. White, ed., *Papers on Flood Problems, op. cit.*

sion was made to parts of the flood plain of the Little Calumet River, in the vicinity of Gary, Indiana. Levees were examined, and residents of the area were interviewed. A stream gaging station was visited and an explanation given of its mode of operation.

The flood hazard on the Little Calumet flood plain contrasts sharply in some respects with that portrayed on the Topeka map, but the same general principles apply and students soon learned to transfer them to the new situation.

In addition to field observation and interview, documentary sources of information were consulted,[21] and students were required to write a report on the study. The contents of these reports and the spirit in which they were written were most encouraging. Students showed an awareness of the problem; they were genuinely concerned about it, and several of them stated without any solicitation that the concern and awareness were entirely new to them. One older student described how he had intended to purchase a new house on the flood plain, but was now determined to look elsewhere. His wife stated that she was definitely "not prepared to add flood damages to the budget"!

[21] Information was supplied by the U. S. Army Corps of Engineers, Chicago District; by the Purdue-Calumet Development Foundation; and by the Indiana Flood Control and Water Resources Commission.

Conclusions

A new series of flood hazard maps is being issued by the Geological Survey. These maps present opportunities to teachers on the high school and college level to introduce an interesting topic to their students in a dramatic and stimulating fashion. If used with care they can provide students with new insights into their own local environment and be an object lesson in man's use of his resources, as well as in the organization of his activities in relation to those resources.

POPULATION AND RESOURCES OF THE EUROPEAN ECONOMIC COMMUNITY

FRANCIS J. MONKHOUSE
University of Southampton, England

EUROPE is divided into a patch-work of states; much of European history, indeed, consists of the story of how these states slowly emerged as national identities, made war upon each other, expanded or declined, and sometimes disappeared, permanently or temporarily. The people who live in these states inevitably acquire an outlook which can be summed up under the term "nationality." This is not easy to define, but it involves common ties and sentiments, certain traditions, a proud history, and sometimes, though not always, a common language. These various emotional links of nationality are a powerful contribution to the identity of a state, the administration of which is carried out by some form of government, freely elected or sometimes, unfortunately, imposed. The countries of Europe jealously guard and indeed stoutly defend their national identity. Yet, paradoxically, in this post-1945 period, Europe has seen a greater tendency toward the closer association and grouping of countries than perhaps at any time in history. This grouping is not always wholly voluntary; the Russian-dominated Communist countries of eastern Europe, the so-called "satellite states," form a continuous "safety-belt" across Europe's narrow

"waist" from the Baltic to the Black Sea. These countries are bound by the Warsaw Pact, a military treaty of mutual assistance; their economic life is tightly organized and directed by the Soviet Union under the aegis of *Comécon;* and their political life is likewise closely controlled.

Three main factors accounting for the voluntary grouping of the free countries are a desire for: (1) some degree of military security, (2) some idealistic form of super-national European parliament, and (3) economic benefit. These desires have been sufficiently strong to overcome at least some of the very conservative and characteristic national individualities.

The military grouping need not be discussed in detail. Designed to meet possible Communist aggression, it started as the somewhat ineffective Western Union, (set up in 1948 by the Treaty of Brussels), which was two years later merged into the North Atlantic Treaty Organization. This NATO "security league" of fifteen free nations, based on the geographical unity of the North Atlantic, has been highly organized as a deterrent to aggression. An effort to form a European Defense Community failed in 1954, but another grouping, the Western European Union, of seven countries, was signed in 1955. Under this, the United Kingdom agreed not to withdraw her divisions and Tactical Air Force from the continent of Europe.

The effective grouping of countries for idealistic motives is less easy to achieve, partly because this does not offer the obvious appreciable benefits of military and economic association. Furthermore real executive power, binding upon the constituent countries, is difficult to attain as a result of their jealous refusal to surrender sovereign rights. However, the Council of Europe was established in 1949. Its Committee of Foreign Ministers and its larger Consultative Committee meet periodically in Strasbourg where a wide range of social, political, and legal matters are discussed. This committee has nothing to do with any kind of military activity, nor has it any executive power.

Economic Groupings

The most effective form of grouping states in Europe is that devoted to economic ends. Europe was indeed in a parlous economic position in 1945 as a result of six years of war. Vast programs of industrial recovery were needed to rebuild the shattered cities, ports, and communications. Europe is normally a major importer of foodstuffs and raw materials, partly because of an over-all density of population four times as great as that of the world as a whole and partly because of the generally high standards of living. These imports must be paid for as far as possible by the export of manufactured goods. Another reason for post-war industrial development has been the unfortunate need of maintaining a high level of armament production in these "cold war" years which has, of course, greatly stimulated heavy industry.

The first efforts at economic recovery after the war ended were of an *ad hoc* character: by UNRRA (United Nations Relief and Rehabilitation Administration), for example; by the European Coal Organization set up as a special agency of UNO (the United Nations Organization); by various large loans from America and Canada to help Europe's critical dollar shortage. The outstanding achievement was the establishment in 1948 of the Organization for European Economic Co-operation (known as OEEC), now including 18 countries. It was set up to organize the economic development of its members by means of efficiently used aid from America. The first of its two main functions was direct aid to economic recovery, which was generally achieved by 1952; the second was to stimulate effec-

tive and continued co-operation among the members. It has established many committees to guide the development of agriculture, industry and transport, and it is difficult to exaggerate its achievements. The almost astronomical number of dollars provided directly and indirectly by the U.S.A. has been well spent. The OEEC was replaced in 1961 by the Organization for Economic Co-operation and Development (OECD), comprising the same 18 countries plus the U.S.A. and Canada.

Several smaller groupings of states can be distinguished beneath the wider economic umbrella of OEEC. One problem which has exercised western Europe in general and France in particular is the future of heavy industry in western Germany, specifically in the Ruhr, a vast densely populated area of 500 square miles of closely knit industrial activity. It was abundantly clear that in the post-war recovery of west European industry, and its necessary extension to meet both the export drive and rearmament needs, the Ruhr as a major producer of both coal and steel had to play a major rôle. On the other hand, France, who has suffered so often, has been concerned to keep some restriction upon Germany's military potential, the basis of which is fundamentally heavy industry, the "iron" of Bismarck's "blood and iron." It was difficult to reconcile these two somewhat opposing attitudes. In 1949, an International Ruhr Authority was established, but this was of a temporary nature, since the imposition of external control on Ruhr coal and steel production could hardly be maintained for long over a rapidly resurgent Germany.

The Six. In May, 1950, the French Foreign Minister, M. Schuman, put forward a proposal for placing under a common authority the heavy industry of France and Germany, and of any other country willing to join them. His motives were undoubtedly economic, in that the heavy industries and therefore the whole economic life of the participating countries would benefit by mutual association. The motives were also political, in that it was tacitly assumed that war between any of the participating countries would become impracticable. In any case, a form of supra-national authority (on which France was represented) would be able to keep some degree of supervisory check upon German industry.

France and Germany were joined by the three Benelux countries (themselves organized in a customs and economic union) and by Italy, to form the European Coal and Steel Community (ECSC) in 1952, to last for fifty years. It aimed, as the Treaty said, "to substitute for historic rivalries a fusion of their essential interests," and "to contribute, in harmony with the general economy of the member states, to economic expansion, to the development of employment, and to the improvement of the standard of living." A common market for heavy industry involved the abolition of quotas and duties for coal, coke, iron ore, pig-iron, scrap and steel, of discriminatory freight-rates, and of all restrictions in respect of terms and prices. The Community, however, has power to take special measures in certain cases, especially during the early transition years, to prevent sudden economic disruptions. It has, for example, protected above-average-cost producers of coal, as in the case of Italy and southern Belgium; it has sponsored programs of research; it has stimulated progress in social security. The High Authority of the Community, with its headquarters in Luxembourg, has its own source of finance, derived from a levy on coal and steel production, and it has supra-national powers binding on the member countries. It has no deal in France with a nationalized coal industry, the *Charbonnages de France;* in Belgium, Italy, and Germany with private enterprise; in the Netherlands with state-owned and private

collieries operating amicably side by side. The United Kingdom did not join the Community, perhaps unwisely, though in 1954 she signed an Association Agreement.

ECSC was the first of several communities. The second was the European Atomic Energy Commission (EURATOM), established in 1958, to promote a common effort between the same six members for the development of nuclear energy for peaceful purposes. EURATOM has research centers at Ispra in Italy, at Petten in the Netherlands, and at Karlsruhe in Germany, while it is collaborating with Great Britain in the construction of a gas-cooled reactor at Winfrith Heath in Dorset.

The third Community is the European Economic Community (EEC), or the European Common Market, which is going much further than ECSC, although the same six countries are involved. It aims to completely integrate their economies, step by step, stage by stage, during the next fifteen years. In January, 1959, tariffs on all trade between the members were reduced by 10 per cent; a second similar reduction occurred in July, 1960. Gradually, too, common policies on agriculture, transport and industry are being harmonized, and the movement of capital is being progressively freed. If the progress already made can be maintained, the Community countries will attain a degree of economic integration which will make it one of the most powerful blocs in the world.[1]

It is probable that the Community may well expand, since it is open to other approved countries to join. For example, discussions are at present (late 1960) proceeding to enable Greece to enter into an association on March 30, 1961.[2] As yet, Greece is unable to join as a full member, for her small-scale, though rapidly growing, industries could not survive competition from the western industrial giants if all protective tariffs were suddenly removed. The aim is to move smoothly and quietly towards full integration in an estimated 22 years. Greece wishes to join because a large part of her export trade, particularly of tobacco, is to the Community countries, and moreover German financial interests therein are considerable.

The three Communities have established a common institution to serve their various needs known as the European Parliament, not to be confused with the Council of Europe. This Parliament consists of 142 representatives from the six countries; it meets periodically in Strasbourg, and it discusses their general affairs, particularly financial problems. There is also a Court of Justice, which meets in Luxembourg, to adjudicate the rare disputes arising out of the operation of the three Communities.

Outer Seven. The formation of the Economic Community did of course cause increasing apprehension among other European countries that they might find themselves in an unfavorable trading position. As a result, with the United Kingdom taking the initiative, another grouping of seven countries was established; as this group extends around the margins of EEC, from Norway to Portugal, it was at first given the name of the "Outer Seven." This later achieved the more dignified name of the European Free Trade Association (EFTA). The Seven may in fact soon enlarge to eight, if Finland becomes a member.[3] This group is pursuing a similar policy of progressive tariff reduction between members, and a first installment of 20 per cent was achieved in July, 1960.

[1] A third tariff reduction of 10 per cent has since taken place. It is hoped that integration of the Community will be completed by 1965, well ahead of schedule.

[2] Greece did the association on March 30, 1961.

[3] The association agreement with Finland was signed in March, 1961.

TABLE 1

	Output in 1958				Population about 1958	
	Coal	Iron Ore (million tons)	Raw Steel	Electricity ('000 million kwh)	Population Total (millions)	Population Per Sq. Mile
Western Germany	133	18	23	90	52	539
Saar	16	—	3	3		
France	58	60	15	62	44	207
Belgium	27	—	6	13	9	764
Netherlands	12	—	2	13	11	881
Luxembourg	—	7	3	1	0.3	316
Italy	1	2	6	44	49	417
Community	247	87	58	226	166	369
U.S.A.	380	69	77	424	181	50
U.S.S.R.	353	90	55	233	212	24
U.K.	219	15	20	108	52	556
China	270	not known	11	not known	700	186
World	1,806	383	270	not known	2,930	56

The fact that there are now two separate trading blocs, EEC and EFTA, has caused concern in both the United Kingdom and America lest this division might threaten west European unity; and various meetings have taken place, so far with little success, to discuss bases for a *rapprochement* between the Six and the Seven. One problem results from the fact that agricultural products are specifically excluded from the tariff reductions of the Seven. Another arises from the position of Commonwealth countries; their trade enjoys special privileges in the United Kingdom, including the free entry of agricultural produce. Their sensitiveness to any modification of this favorable arrangement was abundantly manifest at the meeting of the Commonwealth Economic Consultative Council in London during October, 1960. As the Canadian Minister of Finance bluntly said, during the gingerly probing exploration of Commonwealth views on stimulation of trade between the Six and the Seven, "If there is going to be any tampering with the advantages now enjoyed by Canadian exports in the United Kingdom market, we would have to re-examine the terms of access of British goods to the Canadian market." That warning is clear enough; Commonwealth purchase of exported British manufactures is so important to the United Kingdom that she cannot afford to jeopardize this.

Geographical Bases

It is now necessary to examine the geographical bases of the economic strength of the EEC countries. Table 1 summarizes certain essential aspects of their economy and population; comparative figures for other important countries and for the world as a whole are appended.

Coal. In coal production, the Community takes fourth place in the world. In fact, until 1957 it was third. The recent and continuing Chinese expansion of output has been fantastic; in 1950 this total was only 31 million tons, but in 1955 it was 80 million. When the Community output is broken down, the dominance of West Germany (58 per cent) indicates the importance of the Ruhr, not only to Luxembourg and Italy, but also to the other members which cannot supply their own needs,

especially of high grade coking-coal. In recent years, mining activity has moved into the northern more deeply buried parts of the field.

France's main coal field, in the northern *départements* of Nord and Pas-de-Calais, was devastated by the intense trench-warfare of 1914-18, but was reconstructed in the following years on modern lines. Collieries and carefully planned garden-cities (*cités-ouvrières*) were spaciously laid out, and this field produces about three-fifths of France's total. France's other main field is in Lorraine, in the *département* of Moselle, a geological continuation of the Saar basin. This Moselle field, in German hands from 1871-1918 and 1940-45, has recently been actively exploited, and several new collieries have been opened since the last war. An indication of its modern development and relatively undisturbed seams is that the output per miner per shift in 1958 was 2.3 tons, the highest in Europe, compared with an average for all Communtiy fields of only 1.6 tons.

The Saar coal field is estimated to contain reserves of about 9,000 million tons, almost as great as those of either France or Belgium. Its location in the heart of western Europe, in the debatable zone between France and Germany, has given the Saarland a political significance out of all proportion to its size. The lengthy post-war negotiations ended in 1956, when the French agreed that the district should be incorporated into Germany on January 1, 1957, and full economic union was completed three years later. Its location means that much Saar coal is consumed in eastern France anyway, as there is now no political or economic barrier to its movement across the frontier.

There are two main fields in Belgium. The southern one is strung out as an elongated series of basins along the Sambre-Meuse valleys on the northern flanks of the Ardennes. This is an "old" field, intensively worked for nearly two centuries, and one of the problems of the ECSC. Though it still produced in 1958 about 17 million tons of Belgium's total production of 27 million, many uneconomic collieries have been closed. In this field there were 175 collieries in operation in 1875, but the number of mines declined to 77 in 1939 and to only 45 in 1958. Even so, two-thirds of these were worked at a loss, and in 1959 output fell to as little as 12 million tons, the results of over-production and stock-piling. This field is structurally difficult to exploit, and much of the most accessible coal has been removed. Derelict collieries, overgrown spoil-banks, pit-shafts, blast-furnaces, steelworks and factories, with long rows of small gardenless dwellings, are typical of the crowded development which took place during the nineteenth century along the narrow Sambre-Meuse valley. The importance of the relatively new northern or Kempen field is emphasized by the fact that though only seven collieries are in operation, they are large modern units, standing spaciously in the open heathland, each producing more than a million tons. This deep coal field was discovered in 1901, after half a century of trials, beneath many hundreds of feet of Tertiary sands and gravels. The building of the collieries and of the housing-estates where live their workers, the construction of new roads, railways and one of Europe's finest artificial waterways, the Albert Canal, are all topics of singular geographical interest.

Across the river Meuse, the Coal-Measures are continued in South Limburg, as yet the only exploited field in the Netherlands, though two other very deep fields are known. Here eight collieries owned by private companies work side by side with the four large collieries of the State Mining Company, the latter producing two-thirds of the annual 11-12 million tons output. The Maurits colliery, with an annual output of over 3 million tons, is Europe's largest.

This, then, is the pattern of the west European coal fields, the basis of the Community's industrial life. Much coal moves between one country and another to meet the need for specific qualities and requirements, particularly of coking-coal. Much research has been devoted to the problem of coke-making from coals not hitherto considered suitable. Modern plants in Moselle and the Saar, for example, can now make coke from local coal without the necessity of a 50 per cent admixture of high-grade Ruhr coking-coal, as was formerly necessary.

One other field is worthy of mention, that of the Ville, in the Rhineland west of Cologne. This produces annually, by open-cast working, 100 million tons of brown-coal, which, though only one-ninth the calorific value of bituminous coal, affords cheap fuel for neighboring thermal-generators.

For several years, it was clear that the major problem of European industrial recovery was the attainment of adequate coal supplies. Ironically enough, during the last two years the problem has changed to one of over-production. In August, 1960 just over 30 million tons had accumulated in vast space-occupying stacks at the pit-heads of the Community fields. This situation has been caused partly by the increased use of oil and hydro-electricity, partly by consumer-opposition following inevitable cost-increases and price-rises, themselves largely the result of wage-increases. In some areas, notably in southern Belgium, over-production has been followed by a serious increase in unemployment.

Iron-ore. The iron-ore output is dominated by the *minette*-field of Lorraine, though a considerable body of imported ore is used, notably from Sweden and Spain. Steel is, of course, the basis of industry, in fact, its output trend can be regarded as an industrial barometer. The importance of the Community is seen from the fact that in output of steel it stands ahead of the U.S.S.R. and but little behind the U.S.A. The Ruhr steel-works dominate. But France's output is now her highest ever because the modernization and integration of steel-plants under the Monnet Plan has progressed spectacularly; a mere ten firms produce over 70 per cent of French steel. Similarly, in Belgium the position is dominated by a few huge combines, notably the *Cockerill-Ougrée* concern near Liège. The tiny Grand-Duchy of Luxembourg is the world's ninth steel-producing country, mostly made by the *Arbed-Terres Rouges* combine. All the Dutch steel comes from one state-owned plant at IJmuiden, near the mouth of the North Sea Canal, using both imported coke and iron-ore. Italy, with little coal and not much iron-ore, has nevertheless an output of steel as great as that of Belgium, produced at Genoa, Milan, and Turin from imported "pig" and scrap.

This then is the basis of heavy industry, and many other types of industrial activity follow, situated on the coal fields, at the ports, in the capitals and other great urban centers, on the inland waterways, and in special areas such as the French Alps and the North Italian Plain where hydro-electricity is available.

Other power sources. The oil-refinery capacity has been enormously increased, from about 33 million tons in 1950 to about 108 millions in 1958, as new refineries are built both at the ports of entry and inland at such centers as Cologne and Strasbourg, linked to the tanker-terminals at Wilhelmshaven, Europoort (Rotterdam), Le Havre, Marseilles, and Genoa. Equally striking is the output of electricity with the many producers, both hydro- in the mountains and along the rivers, and thermal- on the coal fields and in the cities, linked by a highly efficient international grid. France illustrates this particularly well; her output of electricity has risen three-fold since 1945 as the great stations at

Génissiat and Donzère on the Rhône, and others on the Rhine below Basle, have come into operation. Italy, with negligible coal, makes an effective contribution of electricity, produced in the Alps and Apennines; she also has a geothermic station powered very economically by volcanic heat.

Population. In the six Community countries live nearly 170 million people, not many fewer than in America. The density of distribution varies. The Netherlands is the most densely populated, followed closely by Belgium, though parts of the Rhine Highlands, the Central Massif and the Alps are but scantily peopled. The over-all high density is the product of a flourishing urban life, based on a varied industrial and commercial activity, together with an intensity of agricultural production in parts of western Europe which is rarely equalled. These activities are linked by a detailed web of communications, not only of roads (including the *autobahnen* and *autostrades*) and railways, but also of inland waterways. The last include both rivers such as the Rhine (which might be called "the axis of the Community") and the Meuse, and the great man-made arteries of the Albert and Juliana Canals. The Albert Canal, for example, linking Antwerp with Liège, carried in 1958 some 26 million tons of freight, including 6 million tons of coal. The Community countries, with their emphasis on overseas trade, are served by numerous ports, including several of world rank, notably Rotterdam, Hamburg and Antwerp on the North Sea, and Marseilles and Genoa on the Mediterranean. Rotterdam handles over 80 million tons of freight each year, a figure which will be greatly increased when Europoort, located at the seaward end of the North Sea Canal linking the main port to the coast, is completed.

An Evaluation

Western Europe has been transformed in little over a decade from a poverty-stricken, war-ravaged region, to one of considerable prosperity, of high and rising living-standards. Notwithstanding the difficulties and problems which the six countries still have to face—economic, political, colonial—a convincing demonstration has been made that the supra-national method of organization can work efficiently and effectively.

POPULATION AND RESOURCES OF THE MEDITERRANEAN AREA

GEORGE KISH
University of Michigan

FOR THE PURPOSES of this paper Mediterranean Europe is defined as comprising Portugal, Spain, Italy, Yugoslavia, Greece and Turkey. In the early 1920's, their total population was 98 million. By the early 1950's it grew to a total of 132 million, an increase of 33.6 per cent over a thirty-year period, equivalent to a yearly increase rate of slightly more than 1 per cent. In 1950, the population of these countries represented 4.8 per cent of the world's total population (Refer to Table I).

While in the past Turkey has not been commonly considered a part of Europe, because of its: (1) present political orientation, (2) membership in the North Atlantic Treaty Organization, and (3) social and economic outlook, many people do consider it a part of Mediterranean Europe rather than a part of southwestern Asia. If we include

TABLE I

POPULATION OF THE MEDITERRANEAN AREA

	1920	1940	Latest (date of census)
Portugal	6,932,991	7,722,152	8,441,312 (1950)
Spain	21,303,162	25,877,971	27,976,755 (1950)
Italy	37,403,956 (1926)	42,302,680 (1936)	47,158,738 (1951)
Greece	5,810,000	7,108,000 (1938)	7,632,801 (1951)
Turkey	13,648,270 (1927)	17,820,950	24,121,778 (1955)
Yugoslavia	13,934,038 (1931)	15,703,000	16,990,617 (1953)

Turkey, we will have defined Mediterranean Europe as extending from the Strait of Gibraltar to the Turkish Straits. It is to be noted that Albania was omitted from this list; this omission is based on Albania's being a member of the Soviet bloc and, in terms of its political, social, and economic conditions, part of Eastern Europe rather than of Mediterranean Europe.

During the greater part of the 20th century, Mediterranean Europe has been considered a depressed area. Living standards have been uniformly low, and only in Italy was a serious attempt made to change this condition. Agriculture, the main occupation of the vast majority of the population, is of the subsistence type, and only in a few areas does commercial farming play an important part. Industrial development, except in Italy, remains in its infancy. Until the 1920's when barriers to immigration were raised, emigration from all the Mediterranean countries played an important part in an attempt to overcome increasingly serious population pressures.

The situation in the Mediterranean area changed somewhat following World War II. After 1945 the devastation wrought by the war in Italy and Greece led to large-scale economic help, principally provided by the United States, and a resultant improvement in the general social and economic level of these two countries. Such intervention did not take place in Portugal or Spain, where outside investment remains limited primarily limited to military expenditures by the United States. Yugoslavia did receive after 1948 substantial help from western, mainly from United States, sources and its general economy, also ravaged by the war, was thus able to achieve production levels comparable to the 1930's. In Turkey the task of modernizing an economy, which only a generation ago was almost entirely of the subsistence type, was an enormous one. Most of the energies of Turkey and all of its resources have been marshalled in an attempt to achieve this particular end.

Resource Basis Limited

The resource base of the Mediterranean countries is very narrow. Their fuel supply is severely limited, with coal production representing 2.4 per cent of the world's total and oil production, 1.7 per cent of the world's total. This latter figure includes the rapidly growing oil and natural gas production from Italy which promises at the present rate of growth to cover a substantial portion of that country's needs. In the other Mediterranean countries the local native fuel base remains so limited as to supply only a small fraction of their needs. In a region of seasonal rainfall, the possibilities of expanding the hydroelectric production are not very promising, and thus improvement in the fuel supply depends largely on new sources of energy.

As far as the metals and minerals are concerned the base is equally narrow

while in the production of food, quality and quantity deficiencies are evident nearly everywhere.

If we are to define output as a function of natural resources, labor, capital, and technology, we may examine Mediterranean Europe under these headings. The resource base, already characterized as severely limited, does present a few bright spots. Mediterranean Europe produces a limited number of metals and minerals. These include, in terms of world output, bauxite (10 per cent), mercury (72 per cent), lead (12 per cent), zinc (9 per cent), chromite (31 per cent), tungsten (10 per cent), and sulfur (30 per cent). While the production of iron is inadequate, the presence of these metals does hold some promise for the future of further developments in light metallurgy.

As far as the agricultural outlook is concerned, Mediterranean Europe does produce certain crops, cultivated there under optimal conditions, and produced in surplus quantity. These include grapes, olive oil, cork, tobacco, and citrus fruit. However, if taken as a whole, the carbohydrate supply of the Mediterranean countries barely approaches the subsistence level and only in a few instances provides a small margin above that. As far as the production of animal proteins is concerned, it is inadequate. Nutrition studies have not been conducted on a wide basis, but it can be stated as a fact that the consumption of meat and of dairy products in all of the Mediterranean countries is limited to and represents only a small fraction of the consumption of these items by the more fortunate peoples of western and northern Europe.

The labor pool of the Mediterranean countries includes at the present time a majority of workers who can only be qualified as unskilled. Agriculture has been traditionally the principal occupation and industry, with the exception of Italy, has employed only a small fraction of the population. The present population growth rate, roughly equivalent to 10 per cent per decade, has in each of the Mediterranean countries created a labor problem. Present outlets in agriculture, industry, trade, and artisan work can absorb only a small fraction of these. Overseas migration is limited to small numbers while inter-European migration until the late 1950's has provided only a very limited number of jobs for people from Spain and from Italy. Unemployment and underemployment have been part and parcel of life in these countries for some decades past. The resultant social, economic and political pressures, while not always evident, particularly under authoritarian regimes, have created a major problem in each of the countries of Mediterranean Europe.

The resources of investment capital for Mediterranean Europe are limited principally by low income levels and relatively low national productivity. Italy is the only country with a significant industrial development, and investment capital formation is taking place there at a modest rate. In Greece, capital formation has been much more limited and a substantial part of such capital has been invested abroad. In the other countries various forms of state intervention have taken place in the economy, but none of them so far is productive of any great amount of investment capital. In Yugoslavia state intervention has taken the form of Communism, with its planned economy, so far producing rather unspectacular results. In Portugal and Spain it has been the corporate state that has engaged in planning, but so far the results have been barely visible, and these two countries remain among those with the lowest per capita income in all of Europe.

In Turkey an experiment in "etatism," attempting with a huge leap to close the gap between the extremely primitive subsistence economy of the late

19th and early 20th century Turkey and the world of the mid-20th century, has so far brought only limited results.

Economic Prospects

Looking at Mediterranean Europe in terms of the concepts of classical economics, the prospects are discouraging. Whether we consider resources and population from a Malthusian point of view, observing the different growth ratios of resources and of population (much to the disadvantage of the latter) or whether we attempt to predict resource use and availability in terms of Ricardo's point of view, the prospect of a finite world with diminishing resources provides very little encouragement indeed. However, if we consider technology defined as "the changing social-technical characteristics of a society," if we consider technology as not being a constant, if we view technology in the widest possible sense of the term, it is possible to detect certain possibilities for this otherwise distinctly "underprivileged" region that may augur well for the future. Among these considerations is the fact that resources do not remain constant but change with the state of technology. It is quite possible that new technical processes will make certain sub-standard resources available which have not been considered at all earlier or were considered as being beyond economic exploitation. Taconite, for example, was not considered a valuable resource in the United States as recently as the 1930's. Because of new processes now available, taconite has suddenly become the basis of a new industry. There may well be minerals and other resources in Italy and Spain which will, in this fashion, become valuable in the future.

Resources do not remain constant. The total resource base changes in its dimensions and makeup as knowledge of a given area increases. An example of this was provided recently when, as a result of extensive prospecting, the Soviet Union suddenly became a major world producer of diamonds. In the Mediterranean, the discovery of gas and oil in Italy since 1945 has already changed that country's balance of payments and improved Italy's economic outlook, by allowing it to cut down on its imports of foreign oil and coal.

The Ricardian concept that resources are used in a declining order of economic quality may not be a valid concept in our world of rapidly changing technology. To use a single example, the world has progressed in its use of energy sources from wood to coal to hydro-electricity to oil and natural gas and now is approaching the age of atomic energy. This particular example is eminently significant for the Mediterranean region, which is deficient in fuel. The introduction of new energy sources, whether of nuclear or solar origin, may in the near future provide an entirely new fuel base and provide new opportunities for industrialization.

What are the implications of these possible changes in technology for Mediterranean Europe? First of all, in interpreting technology in its widest sense, we have to take into account the rapidly changing political-economic environment of Europe. Regional and intra-continental integration is the prevailing trend, with the formation of the European Economic Community in 1958 and, more recently, the first steps towards the creation of the competitive "Outer Seven" group. Among the countries of Mediterranean Europe only Italy is a member of the European Economic Community. But it is entirely possible that other nations of the Mediterranean area will join in the future. This type of economic integration opens new markets for the products of the region and thus provides new employment at home. The availability of new markets, especially for surplus crops such as citrus, may pro-

vide enormous stimulation for certain branches of production now lagging behind.

One of the economic characteristics of Mediterranean Europe has been the relatively slow development of industry. With the exception of the north Italian "industrial triangle," industry has been sporadically distributed and produces only for a limited domestic market. The introduction of new fuels may very well change this considerably, providing a base for such industries as light metallurgy and food processing so important for an increasingly active and intensive "European market."

Some Potential Changes

The vast majority of the people of Mediterranean Europe are farmers, and primary production still provides the greater part of the countries' total output. Technological advances in agriculture, therefore, are likely to have the greatest immediate impact upon the population.

Irrigation, in a Mediterranean climate, holds great promise in helping the farmer raise specialty crops for which hours of sunlight combined with adequate moisture are of key importance. Increases in fruit growing and added numbers of beef and dairy cattle, grazing on irrigated meadows, are but two of the major improvements which are potentially possible through extensive irrigation. Similarly, reclamation of submarginal land in such areas as southern Portugal, southern Spain, and some of the Mediterranean islands could provide additional acreage for specialty crops, *e.g.*, early vegetables and flowers, that appear to have an expanding market as living standards in western and northern Europe continue to rise.

The introduction of modern cooperative marketing techniques, combined with agricultural extension services, might be of equal importance. These are examples of how new technology could help improve conditions. With few exceptions, marketing methods throughout the Mediterranean area are most primitive. Standardization of produce, of the greatest importance in fruit marketing, for example, leaves a great deal to be desired. By following methods of cooperative marketing that are eminently successful in Denmark, farmers may increase their incomes rapidly. In a few districts of south Italy, where land reform agencies introduced cooperatives and provided agricultural extension services, the results have been spectacular.

Certain conditions are essential if new techniques are to be introduced and new industries developed. Investment capital must be available. Because of the scarcity of investment capital within the region, this capital will have to come either from the new European regional organizations (*e.g.*, the European Investment Fund of the European Economic Community), from the World Bank, or from private or public funds in foreign countries. Measures could be introduced to increase government tax revenues by stricter tax controls. It is very likely that such measures, by cutting down the amount of fugitive capital at the same time, could be used effectively to improve the outlook for investment funds.

The majority of the workers in the Mediterranean region are farmers or unskilled laborers. To provide for their absorption into newly created industries and to make them receptive to new agricultural techniques, technical schools and adult education facilities, now scarcely existent in rural areas throughout the region, need to be developed rapidly. General educational facilities, too, require strong support, since illiteracy is still a major problem in the region, and new, skilled cadres for industry, for trade, for services will be very much in demand in the future.

The key to a successful solution of

many of these problems appears to be increasing economic integration, both on the regional and on the continental level. The European Coal and Steel Community, the Common Market, and Euratom, it is true, are being developed by a group of nations of vastly greater resources and higher economic levels than those of the countries of the Mediterrean region. Still, Italy is a member of these three groups, and the advances achieved by the Economic Community will have an immediate impact on Italy, and a considerable indirect influence on Italy's neighbors in the Mediterranean.

It may be predominantly through economic integration that the new technologies will be introduced in the Mediterranean region. New technologies could: (1) raise living standards in this, the poorest part of Europe; (2) provide greater labor mobility and thereby absorb at least part of the growing surplus labor force; and (3) bring about more efficient resource utilization. The Mediterranean region, cradle of European civilization, may, through these means, experience a rehabilitation long overdue.

THE NATIONAL COUNCIL AT WORK

"Do It This Way" Series

One of the several publications of the National Council for Geographic Education is the "Do It This Way" bulletins. These bulletins grew out of requests from classroom teachers for guidance on how to select and use materials with a focus upon the geographical approach. As the titles of the bulletins suggest, each one is written on the use of specific geographical materials, and concentrates upon techniques and methods for developing geographic concepts. They are especially prepared for classroom teachers concerned with the teaching of geography. Although some of the bulletins are written for a particular level, all of the bulletins include suggestions and ideas that can be adapted and used at different grade levels. In fact, the classroom teacher from primary through senior high will find useful suggestions in each of the bulletins.

The point of view behind each bulletin is that geographical thinking requires one to use what he learns in order to develop an understanding of the changing relationships between people and their environment. Today, it is increasingly important that we develop early in the students we teach an awareness of this complex interrelationship in order that young citizens will appreciate both the similarities and diversities from place to place in his country and the world around.

Although each bulletin treats a single topic briefly from a methods point of view, the teacher will observe that geographical study involves observation, exploration, recording, measuring, selecting, classifying, and interpreting on the part of both teacher and students. Each bulletin suggests in a way appropriate to the topic: (1) The importance of observing relationships between people and the physical and cultural aspects of their environment; (2) Going out-of-doors for first-hand observations; but when this is impossible or impractical, suggesting alternatives such as the use of selected pictures, maps, globes, charts, statistics, models, printed matter and interview; (3) The importance of location, which involves the arrangements and distribution of mappable features such as population and physical and cultural phenomena which are often in relation to each other; (4) The importance of measuring, counting, and recording selected observable features; and (5) The necessity for using collected information in order to synthesize and interpret with an open mind.

At all levels of maturity, from primary through college, the ever present questions of students interested in the world begin with "where," "who," "what," "why," and "when," and may conclude with "how come" and "what of it"? It is the purpose of these illustrated bulletins to suggest to classroom teachers a few ways by which they may help students take a problem-solving approach in geographic education, and by so doing increase their power to read more accurately information from geographic materials such as pictures, maps, globes, statistics, and other printed matter.

Our fast-changing world, in which men are pushing back the horizons of space, requires that we use all the geographical materials available and that geographical education be selective. It requires that our methods and techniques be streamlined so that the students we teach will

not only be well informed about the earth on which we live, but will also know how to select and use the increasing amount of current geographic information too recent for the textbook.

Since 1958 the following bulletins in the "Do It This Way" Series have been completed and are off the press:

Number 1. *Geography via Television*, prepared by Jewell Phelps, George Peabody College, Nashville, Tennessee

Number 2. *Geography via Pictures*, prepared by Lynn H. Halverson, Northern Michigan College, Marquette, Michigan

Number 3. *Geography via the Use of Slides, Filmstrips, Motion Pictures, Opaque Projectors*, prepared by Stuart M. Rich and Mrs. Lavina G. Young, Fenwick Grade School, Fenwick, West Virginia

Number 4. *The Home Community*, prepared by Herbert Gross, Concordia Teachers College, River Forest, Illinois.

More bulletins to come: *Latitude and Longitude, The Geography Exhibit,* and *Geography Classroom as a Laboratory*.

We are most grateful to these NCGE members who are authors of these bulletins and are making this real contribution to the geographical sector of the educational frontier.

Mamie L. Anderzhon
1st Vice-President, NCGE
Indiana State College
Indiana, Pennsylvania

GEOGRAPHIC MATERIALS RECEIVED

Jordan A. Hodgkins. **Soviet Power: Energy Resources, Production and Potentials.** Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1961. 190 pages with table of contents, general, coal, and oil shale appendices, tables, and figures. $5.25.

Elliot Roberts. **Deep Sea, High Mountain.** Little, Brown and Company, 34 Beacon Street, Boston 6, Mass., 1961. 275 pages with table of contents, glossary of terms, index of people and places, and illustrations by Albert Orbaan. $3.75.

Committee on Soil and Water Conservation of the Agricultural Board. **Principles of Resource Conservation Policy with Some Applications to Soil and Water Resources.** Publication 885, National Academy of Sciences, National Research Council, 2101 Constitution Avenue, Washington 25, D.C., 1961. 50 pages with table of contents, figures, and tables. $1.50.

Jesse H. Wheeler, Jr., J. Trenton Kostbade, and Richard S. Thoman. **Regional Geography of the World,** Revised Edition. Holt, Rinehart and Winston, Inc., 383 Madison Avenue, New York 17, N.Y., 1961. 674 pages with table of contents, tables, illustrations, and index. $8.25.

Andrew A. Freeman. **The Case for Doctor Cook.** Coward-McCann, Inc., 210 Madison Ave., New York, N.Y., 1961. 315 pages with table of contents, sources, notes and acknowledgments, and index. $5.75.

Umberto Nobile. **My Polar Flights.** G. P. Putnam's Sons, 200 Madison Avenue, New York, N.Y., 1961. 288 pages with table of contents, illustrations, appendix, and index. $4.50.

Paul Fenimore Cooper. **Island of the Lost.** G. P. Putnam's Sons, 200 Madison Avenue, New York 16, N.Y., 1961. 256 pages with table of contents, map of King William Island, and selected bibliography. $4.00.

William Lytle Schurz. **Brazil: The Infinite Country.** E. P. Dutton & Comany, 300 Park Avenue South, New York 10, N.Y., 1961. 346 pages with table of contents, maps, supplementary reading list, a note on pronunciation and spelling, and index. $6.00.

Waldo R. Wedel. **Prehistoric Man on the Great Plains.** The University of Oklahoma Press, Norman, Oklahoma, 1961. 355 pages with table of contents, figures, plates, bibliography, and index. $5.95.

Sir Vivian Fuchs. **Antarctic Adventure.** E. P. Dutton & Co Inc., 300 Park Avenue South, New York 10, N.Y., 1961. 190 pages with table of contents, illustrations, maps and plans. $3.95.

E. Joseph Dreany. **Our World.** Maxton Publishing Corporation, 15 E. 26th Street, New York 10, N.Y., 1958. 28 pages. 69 cents.

Martin Briggs. **Architecture in Italy.** E. P. Dutton & Company, 300 Park Avenue South, New York 10, N.Y., 1961. 179 pages with table of contents, plates, line drawings, and index. $3.75.

Michael D. Coe. **La Victoria: An Early Site on the Pacific Coast of Guatemala.** The Peabody Museum, Harvard University, Cambridge 38, Mass., 1961. 163 pages with table of contents, tables, line-cut figures, offset figures, and index. $6.50.

Monica M. Cole. **South Africa.** E. P. Dutton & Co., Inc., 300 Park Avenue South, New York 10, N.Y., 1961. 696 pages with table of contents, plates, maps and diagrams, and index. $16.95.

BOOK REVIEWS

Sam H. Schurr, Bruce C. Netschert and others. **Energy in the American Economy, 1850-1957: Its History and Prospects.** Published for Resources for the Future, Inc., by The John Hopkins Press, Baltimore 18, Md., 1960. 774 pages including table of contents, tables, charts, appendices and index. $12.50.

The abundant use of energy is the fundamental key to the evolution of the American economy. With a population accounting for about five per cent of the world's total, the United States consumes more than one-third of the world's energy supply. Although energy consumption is a part of many different aspects of American life, industry, transportation, and household use nearly 80 per cent of all energy consumed.

The first part of the volume presents an analysis, beginning with 1850, of more than a century of the country's energy history. During this period there has been two almost complete transformations of the country's energy base, first from wood to coal, then from coal to oil and natural gas. This span of years covers essentially the nation's entire history as a consumer of mineral fuels.

Parts two and three of the volume evaluate the future energy position of the United States, both in terms of the country's growing needs and its ability to satisfy them from domestic resources. The study projects the pattern of energy consumption to 1975. The purpose of the study is basically not to forecast but to provide information about the availability and consumption of energy which will be helpful in public debate and in aiding those responsible for reaching policy decisions.

This is a comprehensive study. The textual material includes 120 tables and 73 figures. In addition there are over 250 pages of statistical material in the appendix.

E. Willard Miller
The Pennsylvania State University

Herrell DeGraff. **Beef Production and Distribution.** The University of Oklahoma Press, Norman, 1960. xx and 252 pages including index, 43 tables, 31 charts, 14 photographs. $5.00.

Protracted drought in the Southwest and low beef prices nationally so concerned the American National Cattleman's Association in 1957 that it established a Fact-Finding Committee to study the production and marketing of beef cattle in the United States. This volume is the Committee's report. It was written by the Committee's Research Director, Herrell DeGraft, who also is Babcock Professor of Food Economics at Cornell University. Although the study follows its subject from ranch to dining table, emphasis is on beef marketing rather than cattle production. Nevertheless, there is much of interest for the teacher of geography. The easy style seems to flow from mastery of subject matter rather than from journalistic technique; the book is appropriate for both academician and general reader.

The basic message, presented through cumulative evidence rather than as a specific generalization, is that, in the American agricultural and food industries, the roles of livestock in general and of beef in particular are increasing both absolutely and relatively. In recent years, sale of cattle and calves has accounted for about one-fifth of the cash income from all crops and livestock in the United States. More than four-fifths of the total agricultural land resource is devoted to production of livestock feed. In 1959, beef cattle comprised nearly 40 per cent of American livestock, measured as feed-consuming units.

Shifts within agricultural regions, or that affect such regions, are also occurring.

Livestock slaughter is undergoing decentralization away from the great terminal markets that were established during the early part of the railroad era. Retailing of meat, on the other hand, is becoming increasingly centralized in the large supermarkets, where it makes up roughly a quarter of food store sales. The great post-1950 surge in per capita beef consumption seems to correlate closely with per capita discretionary spending power, which of course varies regionally.

While this study uncovers many problems in the rapidly changing beef industry, it happily exudes reasoned optimism for the lover of quality beef, whether he be producer, marketer, or consumer.

Clarence W. Olmstead
The University of Wisconsin

Arthur H. Carhart. **The National Forests.** Alfred A. Knopf, 501 Madison Ave., New York 22, N.Y., 1959. 289 pages including table of contents, illustrations, map, appendix and index. $4.75.

This book is a work of love by a man whose first love was The National Forests. His dedication and knowledge is apparent throughout the text as long as he deals with trees and conservation problems. However, when geology or physiography is considered, the errors and misstatements mar an otherwise good book. It is hard to read about the Pleistocene glaciers knocking down mountains that had been peneplained in the Pre-Cambrian, half a billion years before.

The value of the book to the geographer and conservationist is the regional approach and emphasis on the differences in the attributes of each of the national forests. After an introductory chapter on "Our Forest Heritage," each chapter deals with a region as established by The Forest Service. The interrelationships of forests and other resources, although well known to students of the subject, are presented vividly and interestingly by personal and specific ex-

amples. For a man who has been subject to the attacks and "in-fighting" by conflicting interests for use of the national forests, the reasonable approach to "multiple use" or "dominant use," Mr. Carhart's term, is worth careful attention. The twenty-four pages of pictures with their captions illustrate not only the beauty of the national forests but the many uses, problems and forestry practices that must be considered in a balanced management plan for their "wise use."

Although this book is written for the general reader and dilettante of conservation, this reviewer would hesitate to recommend it. It is a shame that a book which deals so well with the national forests and their conservation should have errors in secondary considerations of geology and physiography.

Kerlin M. Seitz
Troy State College

Heinrich Lienhard. **From St. Louis to Sutter's Fort, 1846.** (translated and edited by Erwin G. and Elizabeth K. Gudde). The University of Oklahoma Press, Norman, Oklahoma, 1961. 204 pages with tables of contents, a map, list of illustrations and index. $3.95.

This attractive book, Volume thirty-three in *The American Exploration and Travel Series* of the University of Oklahoma Press, is a translation of a portion of a biographical manuscript written in German now reposing in the Bancroft Library. The writer was a Swiss immigrant who took part in the great 1846 migrations to the Pacific Coast. His manuscript was written long after the events described, in the 1870's, and was based in part upon his diary, in part upon memory of these stirring times. Parts of his diary unfortunately had been lost in the intervening years; and his reminiscences therefore show evidence of faulty memory, later-acquired information and hindsight. The translators, however have done yeoman work in checking Lienhard's account with other reports of the period in order to indicate errors in fact and in personal and place names.

The result is a very readable and fascinating story of one man's experiences crossing the wilderness with an immigrant train in this pre-gold rush year. Lienhard's observations on terrain features soils characteristics of rivers, vegetation, and the Indian peoples encountered are interesting and instructive. The great physical and psychological demands of the journey, and its rewards too, are well brought out, without the usual dramatization.

It is unfortunate that the only map, made by Heinrich Lienhard, included in the book covers but one segment of the journey.

Burke G. Vanderhill
Florida State University

Alfred Steinberg. **Admiral Richard E. Byrd,** G. P. Putnam's Sons, 200 Madison Ave., New York 16, N.Y., 1960. 128 pages. $2.50. Ages 10 to 14.

This is a rapidly moving biography of a great explorer, Admiral Richard E. Byrd. This book, full of adventure, appeals to the teen-age boy and girl. They will have a greater appreciation of high standards and the self-discipline an explorer must have to achieve his goals. The book does not minimize problems and hardships a person faces as he pushes back the horizons, in this case places that are too cold and on the frontier of survival.

The author begins with December, 1955, when Little America V base was dedicated. It is followed by a flash back into the highlights of Admiral Byrd's life and follows through his life in chronological order beginning with a "Boy with Dreams." The adventuresome, curious, determined young boy with the will to work to earn and to deserve is described in concrete incidents given in chapters titled, "An Explorer's Education," "An Ensign in the Navy," "Pioneer in Aviation" and "An American Abroad."

The chapter "Flying Over the North Pole" and those that follow are devoted to reporting very briefly highlights of Admiral Byrd's explorations in the high latitudes both at the North Pole and South Pole.

Some of the major problems and extensive planning an explorer experiences are brought into focus understandable to a teen-ager. There are short descriptions of specific experiences with major personalities. Several of my own students have made mention of the relationship between Admiral Byrd and Paul Siple.

For the teen-ager this book provides inspiration. It gives data the teen-ager likes to plot and locate on a globe; and it leaves the pupil feeling he has been given a glimpse into the life of a great, modern American. The book concludes with this quotation from the *New York Times*, "A rare breed of man: They are men of the world; the sort of men who carry the world forward, who open horizons, who make a mark on history's pages that can never be erased. Richard E. Byrd was such a man."

Mamie L. Anderzhon
Indiana State College
Indiana, Pennsylvania

Christopher Colles. **A Survey of the Roads of the United States of America, 1789,** (edited by Walter W. Ristow). The Belknap Press of Harvard University Press, Cambridge, Massachusetts, 1961. 227 pages with bibliography of Christopher Colles, general bibliography, highway strip-maps, city maps, prints, diagrams, place name indexes and table of contents. $7.50.

War produces geographic knowledge and impels cartographic endeavors, and the American Revolutionary War was no exception. For example, an outgrowth of the American Revolu-

tionary War was Colles' "Survey of the Roads of the United States, 1789"—a series of highway strip-maps. As Walter W. Ristow points out, surveying and mapping experiences during the Revolution inspired Colles' cartographic work—a work destined to be the forerunner of the some 200,000,000 road maps now distributed annually to the American motorists.

Colles' series of maps depicts what were then the chief overland routes in the area between Albany, New York, in the north and Yorktown, Virginia, in the south. In addition to general orientation of the major roads, the maps show churches, inns and taverns, mills, blacksmth shops, bridges, fords, road intersections and outstanding contiguous vegetation and terrain features.

The book is of special importance and interest in that it calls attention to practically unknown facts pertaining to the engineering genius who fashioned the nation's first highway maps. Furthermore, Ristow's contribution in developing this book on Colles' work is especially remarkable in light of an almost complete lack of personal papers or other pertinent records. Not only is the book worthwhile reading to learn of Colles' great contributions, but it is equally worthwhile reading as an example of a high order of skillful research.

J. EDWIN BECHT
University of Houston

Ernle Bradford. **A Wind from the North: The Life of Henry the Navigator.** Harcourt, Brace and Company, 383 Madison Avenue, New York 17, N.Y., 1960. 269 pages including notes, chronology, list of sources and index. $5.00.

Ernle Bradford is not a geographer nor a historian, but rather a sailor with a literary bent. Nevertheless, with the exception of consistently stating that Henry the Navigator has not received all accolades due him for his pioneering efforts in maritime exploration, Bradford displays a great fund of geographical and historical knowledge. Indeed, Henry's role is very much appreciated by both geographers and historians. This biography is a popularized version of Henry's life in that it is not cluttered with citations or footnotes. A short section of "Notes" at the end sufficiently establishes authority.

Several sections deserve merit. The descriptions of the types of vessels and navigational equipment available to Portuguese mariners are very enlightening. Also, the segments describing the explorations of Eannes, Tristão and Cadamosto are well done. In places, Bradford's narrative is a paraphrasing of portions taken from Azurara's *Chronicle of the Conquest and Discovery of Guinea*, the most authentic contemporary record of Henry's activities.

Aside from overdramatizing Henry's role in world history, only one other shortcoming was noted. Almost nothing is said about the actual work of Henry's school at Sagres, and only a few of the great mathematicians and cartographers who were there are mentioned by name.

Considering the book's brevity, Bradford does well in covering a period of approximately 75 years (1385-1460 A.D.), during which time Portugal rose from an insignificant land of peasant farmers to the world's leading maritime nation and the pioneer in Renaissance geographical exploration.

SANFORD H. BEDERMAN
Georgia State College

Georges Jorré. **The Soviet Union: The Land and Its People** (translated and revised by E. D. Laborde). Longmans, Green & Co., Inc., 119 W. 40th Street, New York 18, N.Y., 1961. 372 pages including table of contents, maps and diagrams, illustrations, index and appendix. $7.50.

This book, originally written by the now deceased Professor Jorré of the University of Toulouse, has been up-dated 11 years in its second edition by the man who made the original translation from the French, Professor E. D. Laborde of the United Kingdom. It presents an adequate, useful, generally objective, largely factual and not unduly sympathetic view of the U.S.S.R. Statistics utilized are mostly from Russian sources but they seldom go beyond 1956 and many are actually for the period of the 1930's.

The over-all format of the book follows basically the same four divisions used in the first edition. Few changes were made in the section on "The Physical Setting." However, the remaining sections on "Expansion of the Russian World from Early Times," "The Economic System" and "Main Natural Regions of the Soviet Union" have all been substantially altered in the written phases during the process of up-dating. No new pictures were added. The base map of the Soviet Union used for some of the maps continues to be a very poor type of Mercator projection. Just four completely new maps and diagrams have been added. Less than 10 per cent of the original maps have been changed even slightly and one of those changed, dealing with the railway pattern, is less clear and accurate than the one it replaced.

For those geographers who believe an important work in the field, regional or otherwise, should present an up-to-date viewpoint of geography, this volume does not offer anything particularly different or new. In fact, none of the richness which could have resulted from research according to Robert S. Platt's viewpoint of "areal organization" or Carl O. Sauer's concept of "cultural origination and dispersal" is evident. Apparently the author believes it is perfectly acceptable to talk for pages about collective farms, industrial enterprises, cities, and other land-use phenomena without offering even a single sample map or geographical description

of an existing facility or a pattern map of the spread of even one culture item.

Robert Harold Brown
St. Cloud State College

The Oxford Home Atlas of the World. Prepared by the Cartographic Department of the Clarendon Press. Oxford University Press, 417 Fifth Avenue, New York 16, N.Y., 1961. 130 pages. $2.80.

This volume contains:

(1) Thirteen maps of the British Isles including six general reference maps and seven large scale maps of specific areas. The latter offer a complete coverage of the area.

(2) Three general reference maps each of Europe, Asia, Oceania, Africa, and the Americas.

(3) A series of larger scale maps offering complete coverage of the above world regions. These include seven of Europe, eight of Asia, three of Oceania, three of Africa, and seven of North and South America.

(4) Small scale maps of the Atlantic Ocean, the Pacific Ocean, and of the Antarctic area.

(5) Thirty-one world maps covering selected physical, political, and economic subjects.

(6) A gazeteer of the British Isles based on the British National Grid and one of the world based on latitude and longitude.

(7) A table showing the various countries of the world, their population, area, and land use.

(8) A table showing a series of economic comparisons of the United States, the Soviet Union, the European Common Market area, and a twelve-country Western Europe area.

This book represents "the Oxford School Atlas in a general edition," and maps are well done in a similar manner to those in other atlases of the Oxford series. Close examination shows occasional errors, such as the inclusion of the Miami and Erie Canal on the map of the United States. The major fault, however, insofar as American users are concerned, is that the atlas was obviously designed for the British market and suffers from a lack of detailed coverage of the United States. To one who is willing to overlook this point, or who is especially interested in Britain, the book is a good reference volume at a very reasonable price.

Lowell I. Dillon
Ball State Teachers College
Muncie, Indiana

Sigurd F. Olson. **The Lonely Land.** Alfred A. Knopf, 501 Madison Avenue, New York 22, N.Y., 1961. 273 pages, one map. $4.50.

The "lonely land" of this book is the Canadian Northwest, specifically a large section of the Churchill River and the adjacent Sturgeon Weir tributary of the Saskatchewan River in the province of Saskatchewan. It is a land dominated by the Canadian Shield and exhibits in a special way the unspoiled vastness and loneliness of this part of North America. The author and his five travelling companions were drawn here to "see the country as it was before the Europeans came and know some of the challenges and freedom of those who saw it first." Throughout the travel narrative, constant reference is made to the descriptions and comments of the first European explorers who travelled the Churchill to get from Hudson Bay to the Mackenzie—men like George Simpson, David Thompson and Alexander Mackenzie. At the same time, comparisons are drawn between the author's expedition and those of the early voyagers. The kind of canoes used, the make-up of the packs, diet and meal preparation en route, and the many details of life in the bush are interestingly presented. The geographer will perhaps find that there is too much of this and not enough specific description of the land. This is surprising since the author is a well-known geologist and ecologist. At times he makes a promising start by commenting on the way a sand beach contributes to the total life in a particular valley, or on the role of fire in controlling browse for wildlife. But these remarks are never carried very far. The book is intended for the casual reader and anyone interested in descriptions of how rapids are shot and bush life in unspoiled country will find the book enjoyable. It is illustrated with pen and ink sketches and contains a map of the route.

R. Louis Gentilcore
McMaster University
Hamilton, Ontario

Patricia Lauber. **Getting to Know Switzerland.** Coward-McCann, Inc., 200 Madison Ave., New York 16, N.Y., 1960. 64 pages with illustrations and index. $2.50. Ages 8 to 11.

This delightful introduction to the land-locked, mountainous country of Switzerland is suitable for middle-grade children. The author collected much of her material on a special trip to the country. Information about modern Switzerland with appropriate historical references is presented in a readable, clear-cut style.

Emphasis in the volume is on the geographic—on how people in this land of mountains and lakes, storms and avalanches, have been affected by their environment and the adaptations they have made.

The neutrality of the country is highlighted by its contributions to international peace and welfare, by playing host to numerous international organizations and conferences and initiating and developing the International Red Cross. The ways in which Switzerland has developed a democratic government are delineated, along with some of the problems such as the lack of voting privileges for many of the women.

Interesting accounts of the various Swiss industries and processes include cheese making, cattle raising, production of chocolate candy, manufacture of clocks and watches, railroading and electrical power. The ways in which the

Swiss people have developed a high level of manufacture and products through their industry and excellent training are placed against a background of geographical factors with which these people have effectively coped.

WILHELMINA HILL
U. S. Office of Education

Dorothy Childs Hogner. **Water Over The Dam.** J. B. Lippincott Company, East Washington Square, Philadelphia 5, Pa., 1960. 220 pages with table of contents, selected bibliography, index and illustrations by Nils Hogner. $3.95.

Dams are the subject of this book with aspects of hydrology given occasional treatment. The presentation is primarily descriptive and is based on a layman's interest arising from personal experiences in farm erosion control supplemented by travel throughout the United States. This interest and travel is added to from research in libraries and from correspondence with various resource agencies. The result is a topical organization including ancient dams, medieval dams, mill dams, ancient mills, earth dams, modern high dams and high dam problems. Examples are taken from the history of dam building and from different types of dams found in the United States and other parts of the world. Thus, there is, in this rather informal book, material of interest for the potential tourist and material for the intellectually curious.

The major value of this work is that it makes available in one source a descriptive treatment of all major types of dams which man through time has constructed. However, the various types of controversy over dam construction in modern times are not treated in great detail.

The conservationist will find the chapters, "Doomed By Dams," and "High Dam Problems," of especial interest. It is within these two chapters that the problems of anadromous fish and siltation of reservoirs are discussed. The author presents well the plight of fish blocked from upstream migration and the calamity of dying reservoirs. This side of the question regarding dam construction is too often overlooked.

Many black and white sketches enhance the book. However, the sole dependence on this type of illustration detracts from the reality of the material presented. A selection of actual photographs of some of the structures discussed would increase the impact of the book's content upon the reader. Also, the lack of any maps to show major river systems and locations of dams discussed is a disappointment.

Because the author surveys the subject of dams through history and through different areas, the reader is not left long with any one aspect of the subject. This furnishes a general development of the subject but not a development in depth.

LORRIN KENNAMER
The University of Texas

E. H. Bunbury. **A History of Ancient Geography.** Dover Publications, Inc., 180 Varick St., New York 14, N.Y., 1959. Two Volumes, xvii and 1109 pages with 20 maps and index. Cloth, $12.50 for the two-volume set.

Ancient geographers did not have much trouble defining their field of interest. The world was very large and they were acquainted with only a small part of it; but they did disagree sometimes vigorously, as to the accuracy and interpretation of each other's observations and experiences. The mythical journey of the Argonauts from Greece to the eastern end of the Black Sea and back furnished grist for thought and controversy for hundreds of years.

Three quarters of a century ago Sir Edward Herbert Bunbury wrote an excellent summary of one of the momentous and exciting periods in the history of geography—reconstructing as many as seven maps of the known world as conceived by Greek travelers and writers from nearly 1000 B.C. to the Fall of the Roman Empire. Homer, Anaxamander, Hecataeus, Eratosthenes, Strabo and Ptolemy are among the many geographers cited and appraised in Bunbury's excellent work. Interesting indeed are the sharp comments of many of the writers when checking on the errors of their predecessors. How wrong can so-called authority and generally accepted notions be? Bunbury's *History of Ancient Geography* illustrates the evolution of thought concerning the world of space and people more than 2000 years ago. Progress came because there were men who dared to reexamine and challenge the validity of generally accepted assumptions. Bunbury tells us about these exciting experiences among ancient geographers. What they achieved so laboriously, we accept today as if the facts were always known. Controversy is inevitable, but refinement of methods and reassessment of assumptions must eventually bring the rewards of progress and also new problems to solve.

Who were the great pioneers in scientific geography? Who wrote a remarkable seventeen volume series of geographies at the beginning of the Christian Era? Read the Bunbury *History of Ancient Geography*. Of course, Bunbury should be required reading for all students specializing in geography. A knowledge of the long and arduous route by which we have arrived at our present day understanding of the earth's surface should serve immeasurably to enrich the geographic background of every teacher of geography.

EARL E. LACKEY
U.S. Army
Natick, Mass.

Margaret O. Hyde. **Animal Clocks and Compasses.** Whittlesey House, McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 36, N.Y., 1960. 159 pages with table of contents, bibli-

ography, maps, index and illustrations by P. A. Hutchison. $2.95.

This small book is a collection of the unusual and mysterious ways of the animal kingdom, especially as they have to do with time and direction. The reader was somewhat frustrated by the great amount of examples concerning the mysteries of the natural rhythms various types of animals possess, yet so little was offered in explanation. The reason, of course, is simple—so little is known "Why." That which is known as well as much that is still belief is adequately presented.

This book should fascinate children of the middle elementary grades. Its greatest utility is in the field of nature study or perhaps certain portions of an earth science course. The list of science projects should be of particular interest to the teacher looking for new ideas.

WALTER H. MCDONALD
Eastern Illinois University

John Ise. **Our National Park Policy: A Critical History.** The Johns Hopkins Press, Homewood, Baltimore 18, Md. (Published for Resources for the Future, Inc., Washington, D.C.), 1961. 701 pages with table of contents and index. $10.00.

This is a significant study in American land policy. Ise's work offers somewhat more and somewhat less than the title implies: national park histories and the history of the National Park Service are included; but the accounts of park policy are restricted, primarily, to those areas of scenic and archeological interest. The volume has a tripartite format that suggests the author's over-all approach to his subject.

Part One is entitled "The Early Parks: 1872-1916." This unit begins with Yellowstone, in an account that antedates all policy as such. Similarly, compact histories of Yosemite, Sequoia, and other western parks comprise the bulk of the remainder of Part One. A chapter, "The Antiquities Act: The National Monuments," contains the early history of "archeological ruins" of the Southwest. Three "inferior national parks" are treated lightly in a separate chapter. Although interestingly written, Part I seems to scatter, rather than gather, the loose threads of early national park policy.

With the creation of a central agency devoted to managing the parks, a more explicit form of policy begins. Correspondingly, Ise's account of it—Part Two, "The National Park Service: 1916-1959"—is a substantial one. The problem of formulating and implementing policy while under relentless pressure from private interests is particularly well presented.

The work closes with a brief Part Three, "Special Park Problems," that includes such topics as wildlife preservation and park financing. A limited account of national parks in other countries ends the volume.

John Ise's "critical history" of national park policy was not written without bias, but the slant is familiar and comfortable to American conservationists.

ROBERT C. MAYFIELD
Texas Christian University

Bernhard and Michael Grzimek. **Serengeti Shall Not Die** (translated from the German by E. L. and D. Rewald). E. P. Dutton & Co., 300 Fourth Avenue, New York 10, N.Y., 1960. 344 pages including table of contents, photographs and index. $6.95.

Here is an outstanding work, written with compassion for the plight of the last remaining great herds of wild animals in East Africa. Dr. Grzimek and his son set themselves the task of determining the true animal population, their geographical distribution, major migration routes, grasses for their dietary requirements, of the animals of the Serengeti National Park in Tanganyika.

Working in the teeth of well-nigh insurmountable difficulties, their accomplishments and discoveries are told with disarming candor and restraint. The most significant contribution of their book is the capturing of the atmosphere of this last outpost of primative, undisturbed Africa.

Biogeography is well covered, though this was not the primary aim, for their concern lies in the future for the denizens of this area. The book's subtitle "367,000 Seek a Home" will indicate the importance of the authors' endeavors. But numbers alone are not their sole concern. Dr. Grzimek, senior, survived to write the book, with an objectivity to be wondered at (for his son gave his life pursuing these investigations), relating how the proposed changes to the Serengeti boundaries will worsen the lot of all the animal population. These changes of the demarcated boundaries are the result of social and political pressures, which clearly have ignored the effects they will have upon the game herds the national parks sought to protect and preserve. Poaching, by unscrupulous natives, is still the worst hazard facing the future success of any National Park area, and inadequate financing cannot ensure proper measures of supervision and control.

For anyone interested in a fascinating, authentic picture of the game reserves, a geographical picture of their importance to Africa's past, here is a book (containing many magnificent photographs) which is most warmly recommended.

BERNARD WILLIAMS RILEY
Indiana University

Pre-Publication offers

FIRST TIME IN ENGLISH

Two world-famous works of reference and scholarship from the distinguished French publishing house of Larousse

LAROUSSE ENCYCLOPEDIA OF THE EARTH

Geology, Paleontology and Pre-History

Introductions by SIR VIVIAN FUCHS *and* CARROLL LANE FENTON. The most complete, authoritative, and superbly illustrated book of its kind—amassing from the world's great scientific centers the sum of what man has learned about the Earth, its atmosphere, its crust, and the riches of its interior. 600 illus., many full color plates. LC:61-14331. 8½" x 11". *Before Jan. 1, $12.95. Thereafter $15.00*

LAROUSSE ENCYCLOPEDIA OF WORLD GEOGRAPHY (Europe)

Introduction by DUDLEY STAMP. The first book of its kind ever published in America. A mammoth encyclopedia devoted in its entirety to the 32 countries of Europe (except U.S.S.R.) with 676 masterpieces of modern mapmaking and geographic photography, many in magnificent full color. LC:61-14332. 8½" x 11." *Before Jan. 1, $14.95. Thereafter $17.50*

PROFESSIONAL & LIBRARY DISCOUNTS AVAILABLE

Published by Prometheus Press and distributed by

G. P. PUTNAM'S SONS

200 Madison Avenue, New York 16, N.Y.

Factual Up-to-date Information
in Language that Children Understand

THE COMMUNITY WHERE YOU LIVE

by Mary Lusk Pierce
and Euphrosyne Georgas

The introductory text in the Stull-Hatch Geographies expands the child's understanding of democratic living—at home, in school, and in the community. Filmstrips for this text are also available.

OUR WORLD TODAY

(the Stull-Hatch Series)
revised by Harold D. Drummond

All four of these newly revised textbooks present geography as a vital force in the development of nations. Jeppesen natural-color and black-and-white relief maps, natural regions maps, and views of the Geophysical relief globes provide a firm basis for the course.

A Journey through Many Lands (1960)
Journeys through the Americas (1960)
The Eastern Hemisphere (1961)
The Western Hemisphere (1961)

ALLYN AND BACON, INC.

Boston *Rockleigh, N.J.* *Chicago*
Atlanta *Dallas* *San Francisco*

FOCUS

A Publication of The American Geographical Society

In today's fast-moving world, teachers and students alike need to understand the peoples of other lands—their ways of life, their physical environments, their problems. Illuminating current world affairs, FOCUS helps to provide just such understanding. Each issue presents a brief, readable, up-to-date survey of a country, region or resource. Published monthly except July and August. Subscription: $1.00.

FOCUS
American Geographical Society
156th Street and Broadway New York 32, N.Y.

DID YOU KNOW THAT

1. . . . the 47th Annual Meeting of the National Council for Geographic Education will meet in the Hotel Benjamin Franklin, Philadelphia, Pennsylvania, November 24-25, 1961?
2. . . . the theme for the 47th Annual Meeting of the NCGE is "Geography for American Schools"?
3. . . . student membership applications may be secured from Lorrin Kennamer, Secretary of NCGE, The University of Texas, Austin 12, Texas?
4. . . . Professor John W. Morris, Director of the NCGE Publication Center, has announced a new series of four-page leaflets which sell for twenty-five (25) cents each.
5. . . . advertisers appreciate knowing that you read their advertisements? So write to them.

A new series every school will welcome

Picture Aids to World Geography

by ANITA BROOKS

This series for young readers deals with the leading products of our times. In fine photographs and clear text, each book shows the world at work: an ever fascinating world of fields, farms and forests, factories, wharves and warehouses, research and experiment, and of the people who raise and process and ship the goods we all use.

Each book 6" x 9", 96 pp., double-page map. Profusely illustrated with over 100 photographs, index. Ages 9-12. Each $2.86 net. Guaranteed Library Binding.

THE PICTURE BOOK OF TEA AND COFFEE

"Large crystal-clear photographs do most of the telling with full captions and brief paragraphs tucked in between supplying the verbal information . . . We view men and women at work during the specific stages of growth, processing, manufacture and shipment . . . Treated with maximum interest." —VIRGINIA KIRKUS (9/15/61) LC 61-8270

THE PICTURE BOOK OF FISHERIES

"A new series gives promise of being an excellent contribution to factual books regarding world products . . . Each picture is accompanied by a paragraph bringing out fascinating salient facts." — *School Library Journal* (April, 1961). "A very promising new series."— *N. Y. Herald Tribune* (5/14/61) LC 61-5642

THE PICTURE BOOK OF GRAINS *Ready shortly*

Your school needs all of the

LET'S VISIT books by John C. Caldwell

"The special appeal of these books is their up-to-the-minute reporting . . . The excellent use of maps, photographs and indexes rounds out the informative picture. Fine reading for 9's and up into the teens."— *Christian Science Monitor*

Just published

LET'S VISIT PERU and LET'S VISIT COLOMBIA

Published earlier

Let's Visit AMERICANS OVERSEAS • ARGENTINA • BRAZIL • CEYLON • CHINA • FORMOSA • INDIA • INDONESIA • JAPAN • KOREA • MIDDLE AFRICA • WEST AFRICA • MIDDLE EAST • PAKISTAN • PHILIPPINES • SOUTHEAST ASIA • THE WEST INDIES

Each book 6" x 8". 96 pp. Cloth, Maps, photographs, index. Ages 9-13. Each $2.95

THE JOHN DAY COMPANY • Sales Office: 200 Madison Avenue, New York 16

A Stimulating New 6th Edition . . .

WORLD GEOGRAPHY

ECONOMIC, POLITICAL, REGIONAL

By Norman J. G. Pounds and Edward L. Cooper

The same general philosophy is followed in the Sixth Edition as in the previous edition. All discussions are centered around man's political and economic activities on the earth's surface and how they are conditioned in varying degrees by it. The world-minded youth of today will be captivated by the lucid, conversation-like descriptions that are used to show the interdependence of one region of the world upon the economic products and natural resources of other regions. Major attention is given to the regional study of the United States with adequate coverage of the other countries of the world and their contribution to man's economic needs. A sixteen-page colored map section is added.

Write the nearest office for an examination copy if you can consider this book for adoption

SOUTH-WESTERN PUBLISHING CO.

(Specialists in Business and Economic Education)

Cincinnati 27 New Rochelle, N.Y. Chicago 44 Burlingame, Calif. Dallas 2

BOOK REVIEWS

D. S. Walker. **The Mediterranean Lands.** John Wiley & Sons, Inc., 440 Fourth Street, New York 16, New York, 1960. xxiii and 524 pages including table of contents, plates, maps, diagrams, and index. $6.75.

This is a well-written, well-balanced regional treatment of the lands surrounding the Mediterranean Sea. A short introduction, dealing with physical features of the area, is followed by detailed regional discussions of the western basin of the Mediterranean in Europe and in Africa, the mediterranean areas of the Balkan peninsula, and the eastern Mediterranean from Turkey to Egypt. In each section there is a discussion of physical and social-economic characteristics, the maps are simple and well integrated with the text, and there are numerous and up-to-date statistical tables. The fact that this book was written primarily for students at the secondary level in British schools illustrates the background required by our colleagues in Britain, which is comparable to second-year college geography over here.

One might question the author's inclusion of certain parts of North Africa in the Middle East solely on the strength of their bordering the Mediterranean, but in all other respects this is an excellent survey of an important region.

GEORGE KISH

The University of Michigan

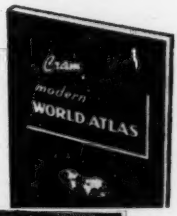
E. Joseph Dreany. **Our World.** Maxton Publishing Corp., 15 E. 26th St., New York 10, N.Y., 1958. 27 pages with illustrations. 69 cents. Ages 10 and up.

Our World, another of the "Maxton Books for Young People," is primarily concerned with the physical nature of the earth. Emphasis is on geologic history and structure with brief discussions of the origin of the earth and the development of surface features. Brief sections outline the role of wind, water, waves, and ice as erosional agents. In addition, brief mention is made of the method of coal formation, the age of dinosaurs, the age of mammals, the planetary system, and man's use of natural resources. The book contains many excellent illustrations and a geologic time chart.

The greatest shortcoming of the book is the attempt to cover so much material in approximately fourteen pages of text. Too frequently

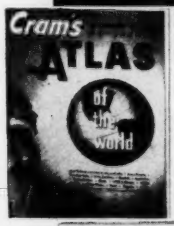
(Continued on page 396)

Cram's 1961 Library, Classroom and Student ATLASES



MODERN WORLD ATLAS $9.95

NEW, revised, enlarged 1961 Edition. Many new features never before available.
NEW, World History Section—32 full color map pages, 32 important Historical periods.
NEW, Earth Science and Outer Space Section. Complete 1960 census figures completely indexed. Size 9" x 12"—368 pages—Beautiful Hard cover.



New Series Student Desk Atlases

SOCIAL STUDIES— $1.00

The Student Quick Reference Atlas of the World is a 36 page book published especially for individual student desk use. Printed in 7 colors and features 10 double-page maps and six full-page maps of political maps. Many schools have adopted this Atlas as a supplemental text for regular classroom work. Size 9 x 12, bound in a colorful, stiff paper cover.

OUTER SPACE SCIENCE—$1.00

An essential Atlas in a day of rapidly advancing science and discovery. Completely new presentation of earth science and man's growing experience in outer space. Clear, easy-to-understand maps and drawings show the moon, solar system and man's earth satellites. Size 9 x 12, contains 32 pages and is attractively bound in a stiff paper cover.

WORLD HISTORY— $1.00

An outstanding aid to the history student. This Atlas is designed as a supplementary text to any history course. 32 maps show graphically 32 important periods in the history of the world. Each map is in full four colors with maximum readability. This Atlas follows the course of history from the earliest days of man through World War II. Size 9 x 12, stiff paper cover.

BIBLE LANDS— $1.00

Ideal for teaching Biblical History. Beautiful printed maps in four colors. Recently revised and enlarged. Excellent scenes and illustrations from the Holy Land. Bible Stories—Double-page, three dimensional birdseye view of the Holy Land, showing every locality mentioned in the New Testament. Size 8½ x 12, paper cover.

Write for Quantity Prices

GEORGE F. CRAM CO., 730 E. Wash. St., Indianapolis, Ind.

WEATHER INSTRUMENTS

Amateur and
Weather Bureau Types

Complete installations for
schools from $59.50 to $2895.00
Write for catalog

SCIENCE ASSOCIATES

Instruments/Weather • Astronomy/Teaching Aids

194 NASSAU STREET , P.O. BOX 216 PRINCETON, N.J.

(Continued from page 394)

rather advanced scientific terminology is used without adequate explanation of its meaning. This is likely to prove confusing to the beginning student of earth science. However, the book, with its many fine illustrations, is likely to prove interesting to young readers getting their first sampling of the physical character of the world around them.

ARTHUR D. EARICK
Orange County State College

Francis Mazier. **Teiva, Boy of Tahiti.** Follett Publishing Company, 1010 West Washington Boulevard, Chicago 7, Illinois, 1960. 47 pages. $2.00. Ages 8 to 10.

Teiva, the Tahitian counterpart of the 8 to 10-year-olds who will enjoy this story, lives contentedly on an island Paradise. Because "fishing comes first in the education of the boy," Teiva spends most of his time in the lagoon. He swims, races boats he has made, and has water battles. He paddles a canoe, called a pirogue, whenever he can and practices tossing a many-pronged harpoon. If he spears a large fish it becomes dinner for his family, but this is incidental. People live in a relaxed manner in Tahiti where food is easy to find. On his pony he explores the island and enjoys fragrant flowers, rippling waterfalls, and colorful birds. He has fun "sledding" on the mountainside by using a piece of the soft trunk of a banana tree for his sled. When he goes home he takes with him two rounds of breadfruit and a bunch of bananas. After a memorable evening is spent enjoying music and dancing on the beach, the happy little boy falls to sleep.

Francis Maziere, the French archaeologist and explorer, has written a charming story of one day in the life of a boy of Tahiti. His remarkable photographs give form to the sea urchins, coral reef, and other unusual words which appear in the narrative. Teiva and his parents and friends are the subjects of many action shots which show Teiva climbing a cocoanut tree, his mother cooking on a stone oven, his father playing a guitar as friends engage in a torch dance, etc. This is a book which is an excellent source of information about Tahiti as well as an interesting story for children of all ages.

IRENE BROCKMYER MCKELVEY
Avonworth Schools
Pittsburgh 2, Pennsylvania

Lillian J. Bragdon. **The Land and People of Switzerland.** J. B. Lippincott Co., East Washington Square, Philadelphia 5, Pa., 1961. 127 pages including illustrations, table of contents, and index. $2.95. Ages 12 and up.

Miss Bragdon gives a comprehensive view of Switzerland and its people. In Chapters I and II she describes the physical geography of Switzerland and explains why the country has been called the "Crossroads of Europe," the "Roof of Europe," and "The Playground of Europe." It could equally be designated the "Workshop of Europe."

Her descriptions of the mountains and glaciers are excellent. Then follows a brief history of Switzerland in Chapter III. Later in Chapters XIII and XIV she brings Swiss history up to date. In Chapters IV to XII inclusive she describes each of the Swiss Cantons, with special attention to the leading city or cities.

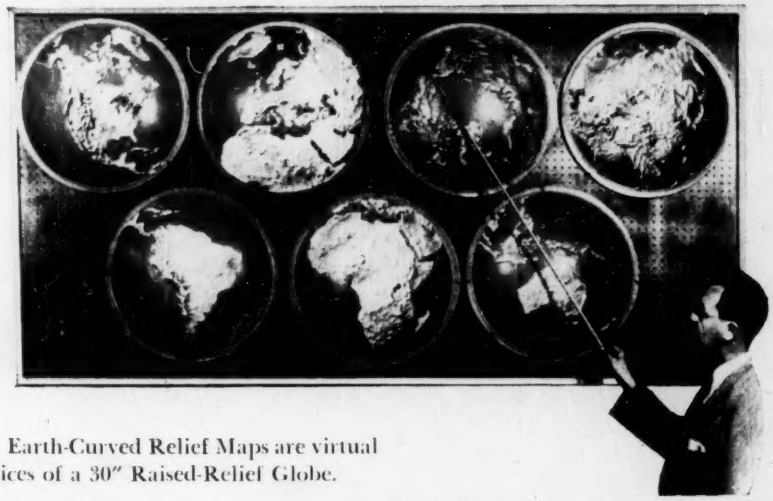
Miss Bragdon tells us of the points of special interest to visitors and the festivals characteristic of the various Cantons. She also reminds us that although the Cantons may have family differences they stand as one. As she says, "Sometimes the various Cantons may disagree among themselves and may not love each other deeply, but they are willing to give up their opinions for the good of all."

This is an unusual book which gives us both the history and the geography of the country along with an understanding of its government and its people.

ZOE A. THRALLS
University of Pittsburgh

ACTUAL RAISED-RELIEF GLOBE SECTIONS

Touch and feel the mountains, lakes and rivers!



Earth-Curved Relief Maps are virtual slices of a 30" Raised-Relief Globe.

Each is 23" in diameter, 6" deep and weighs only 14 ounces.

A flat edge with eyelet enables the map to be hung as a plaque or laid flat on the desk. The maps are formed in high relief of tough washable plastic with seas in turquoise, land in ochre and highlands in sepia.

Teachers find Earth-Curved maps are ideal activity tools. Poster colors, crayons, pencils and ball point pens may be applied and removed easily.

THE SEVEN MAPS:

EC2 Europe
EC3 Asia
EC4 Africa
EC5 North America
EC6 South America
EC10 Australia
EC57 No. Polar Area

Each $9.95

EC7 Set of seven

Only $63.00

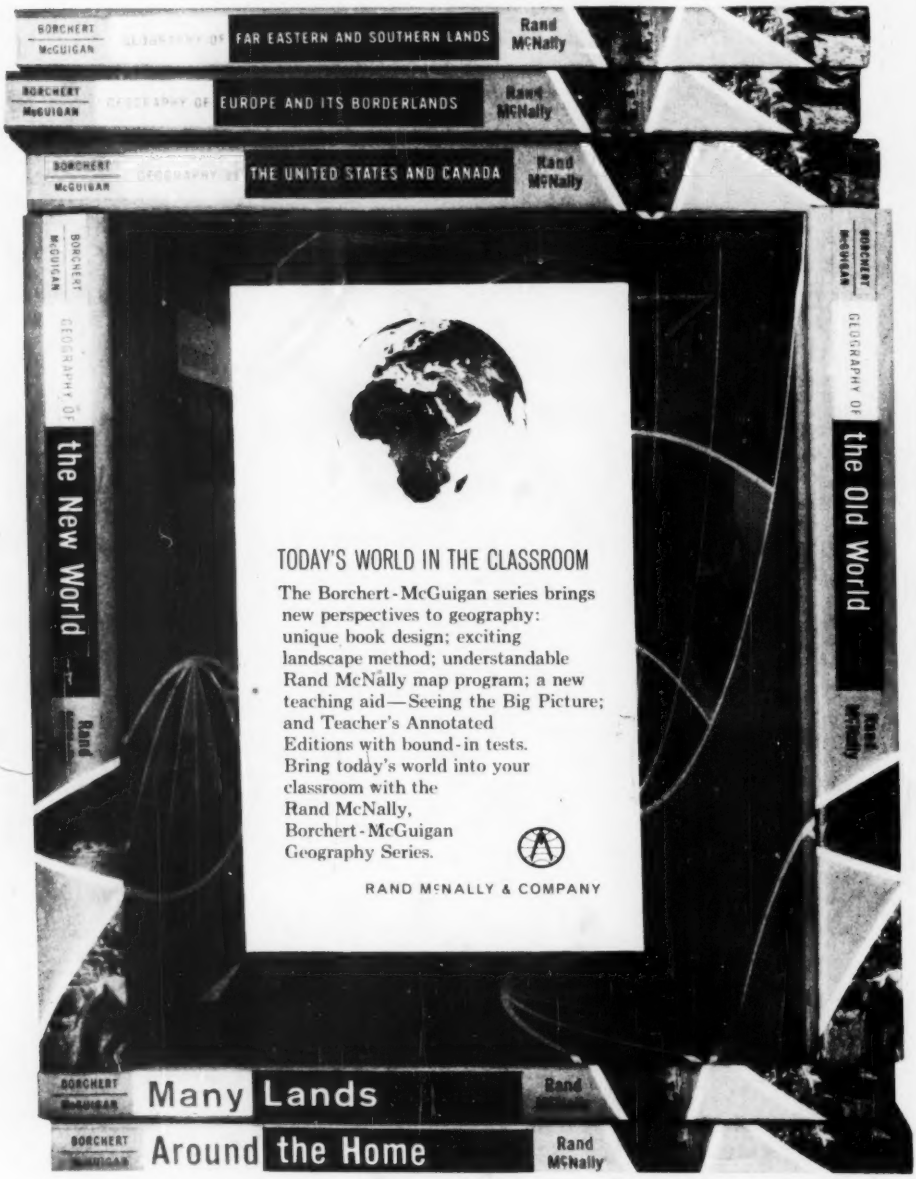
Write for circular G33c

DENOYER-GEPPERT COMPANY

Maps • Globes • Charts • Models

5235 Ravenswood Avenue — Chicago 40, Illinois

GRADE 3 – Around the Home • **GRADE 4** – Many Lands • **GRADE 5** – Geography of the New World
GRADES 6, 7 – Geography of the Old World • **GRADE 5** – Geography of the United States and Canada
GRADES 6, 7 – Geography of Europe and Its Borderlands • **GRADE 7** – Geography of Far Eastern and Southern Lands


BORCHERT McGUIGAN
FAR EASTERN AND SOUTHERN LANDS
Rand McNally
EUROPE AND ITS BORDERLANDS
THE UNITED STATES AND CANADA
GEOGRAPHY OF
the New World
the Old World
Many Lands
Around the Home
TODAY'S WORLD IN THE CLASSROOM
The Borchert-McGuigan series brings new perspectives to geography: unique book design; exciting landscape method; understandable Rand McNally map program; a new teaching aid—Seeing the Big Picture; and Teacher's Annotated Editions with bound-in tests. Bring today's world into your classroom with the Rand McNally, Borchert-McGuigan Geography Series.
RAND McNALLY & COMPANY

Write for free Color Brochure: Education Division, Rand McNally, P.O. Box 7600, Chicago 80, Illinois

Mention the JOURNAL—It Assures Service